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Final Response to BDAT Related Comments Document D008 Characteristic Wastes for Lead and P and U Wastes Containing Lead. Volume 1-H

(U.S.) Environmental Protection Agency, Washington, DC

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This response to comments document only addresses those comments which were submitte don the proposed land disposal restrictions for htose waste codes and general BDAT technologies and issue which relate to 3rd 3rd Wastes Treatment Standards.
The commenters presented in this document are grouped according to major concerns of the commenters.

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FINAL
RESPONSE TO BDAT RELATED COMMENTS DOCUMENT

D008: Characteristic Wastes for Lead
and
P and U Wastes Containing Lead

VOLUME I-H

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May 1990

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INTRODUCTION

This response to comments document only addresses those comments which were submitted on the proposed land disposal restrictions for those waste codes and general BDAT technologies and issues which relate to Third Third Wastes Treatment Standards.

The commenters presented in this document are grouped according to major concerns of the commenters. This document is comprised of the following sections:

ISSUE CODE 1: General BDAT Aspects
ISSUE CODE 2: D001 - Characteristic Ignitable Wastes
ISSUE CODE 3: D002 - Characteristic Corrosive Wastes
ISSUE CODE 4: D003 - Characteristic Reactive Wastes and P and U Wastes Containing Reactive Listing Constituents
ISSUE CODE 5: D004/D010 - Characteristic Wastes for Arsenic and Selenium and K, P, and U Wastes Containing Arsenic and Selenium
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ISSUE CODE 25: K015 - Still Bottoms from Benzal Chloride

ISSUE CODE 26: K021 - Spent Antimony Catalyst.

(No Comments Were Received for this Waste Code)

ISSUE CODE 27: K046 - WW Treatment Sludges from Manufacturing, Formulating, and Loading of Lead-Based Initiating Compounds

ISSUE CODE 28: K060 - Ammonia Still Lime Sludge.

(No Comments Were Received for this Waste Code)

ISSUE CODE 29: K061 - Electric Arc Furnace Dust

ISSUE CODE 30: K069 - Emission Control Dust/Sludge from Secondary Lead Smelting

ISSUE CODE 31: K071, K106 - Mercury Cell Process Wastes

ISSUE CODE 32: K073 - Chlorinated Hydrocarbon Wastes.

(No Comments Were Received for this Waste Code)

ISSUE CODE 33: K086 - Residues from Ink Formulation

ISSUE CODE 34: K100 - Waste Leaching Solution from Acid Leaching of Emission Control Dust/Sludge from Secondary Lead Smelting

(No Comments Were Received for this Waste Code)

ISSUE CODE 35: Wastes Containing Cyanide

ISSUE CODE 36: K017 - Wastes from the production of Epichlorohydrin

(No Comments Were Received for this Waste Code)

ISSUE CODE 37: K028,K029, K095, K096 - Production of 1,1,1-Trichloroethane

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ISSUE CODE 39: K022 - Wastes from the Production of Phenol/Acetone

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(No Comments Were Received for this Waste Code)

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(No Comments Were Received for this Waste Code)

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Commenters are identified by both commenter number and commenter name. Comments within each section of this document have been assigned a sequential comment number.

Issues were obtained from the original comment submittal and were categorized based on the grouping specified above. The Agency's response to each comment follows immediately after the text of the document. For responses related to capacity issues, the reader should review the "Response to Comments Background Document for the Third Third Land Disposal Restrictions Proposed Rule, November 22, 1989. Volume II Capacity Related Comments." For information regarding broad policy questions, the reader is directed to the "Response to Comments Background Document for the Third Third Land Disposal Restrictions Proposed Rule, November 22, 1989. Volume III Policy Related Comments."

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No Comments Were Received for this Waste Code

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No Comments Were Received for this Waste Code

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ISSUE CODE 9:D008 - Characteristic Wastes for Lead P and U Wastes Containing Lead

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Comment Number: 9-A-1
Docket Number: LD12-00133
Commenter: PPG INDUSTRIES, INC.
Issue: LEAD WASTES
Subissue: Characteristic Level as Treatment Standard
Comment:

D008 Lead - The proposed BDAT standard for lead is not only below the characteristic level, but is below drinking water standards. This standard is far too stringent in light of limited national treatment capacity. EPA should set BDAT for D008 wastes at the characteristic level of 5.0 mg/l.

COMMENT NUMBER: 9-A-1

DOCKET NUMBER: LD12-00133

COMMENTER: PPG INDUSTRIES

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

The data available to EPA show that a treatment standard of 5.0 mg/l is achievable for D008 wastewaters (or nonwastewater EP leachates). However, EPA recognizes the diversity of wastes that qualify as hazardous under the D008 classification and has chosen to regulate D008 nonwastewaters at the characteristic level of 5.0 mg/l in the EP leachate. D008 wastewaters are regulated at the characteristic level to avoid disrupting the NPDES and UIC systems (set at the characteristic level).

Comment Number: 9-A-2
Docket Number: LD12-00143
Commenter: GENERAL MOTORS CORPORATION
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

The Agency has proposed two options for the treatment standard for lead D008 wastewaters. Once again, we cannot agree with establishing a standard merely on the basis of it being technically achievable, without any regard to whether it is economically feasible or necessary for protection of public health and the environment.

We therefore recommend adoption of the second option, i.e., that the treatment standard for lead D008 wastewaters be established at the existing characteristic level of 5.0 mg/l as measured in the leachate generated in the EP Toxicity test.

Finally, as stated previously, we cannot agree with establishing a standard merely on the basis of it being technically achievable, without any regard to whether it is economically feasible or necessary for protection of public health and the environment.

We therefore recommend that the standards for all lead D008 nonwastewaters be established at the existing characteristic level of 5.0 mg/l as measured in the leachate generated in the EP Toxicity test.

COMMENT NUMBER: 9-A-2

DOCKET NUMBER: LD12-00143

COMMENTER: GENERAL MOTORS CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

The data available to EPA show that a treatment standard of 5.0 mg/l is achievable for nonwastewater D008. However, EPA recognizes the diversity of wastes that qualify as hazardous under the D008 classification. Because of this diversity, EPA has chosen to regulate D008 nonwastewaters at the characteristic level of 5.0 mg/l in the EP leachate.

Additionally, the Agency has decided not to upset these programs and has, therefore, regulated lead wastewaters at the characteristic level.

The commenter's position regarding caps on treatment standards has generally been rejected in HWTC VI, 886 F.2d 355 (D.C. Cir. 1989). See also EPA's discussion of legal standards for characteristic wastes in the preamble to today's rule.

Comment Number: 9-A-3 ✓
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: LEAD WASTES
Subissue: Characteristic Level as treatment standard
Comment:

A. Proposed Treatment Standards for D008 Wastes

1. Wastewater Subcategory

For wastewater forms of D008 wastes, EPA has proposed a best demonstrated available technology ("BDAT") treatment standard, based on a precipitation process, of 0.04 mg/l of lead. Alternatively, the Agency has proposed the characteristic level of 5.0 mg/l of lead. The SLSA supports the characteristic level because data that the Battery Council International ("BCI") recently submitted to EPA indicate that the characteristic level is more representative of the lead industry's waste stream.

By setting a treatment standard below the characteristic level for wastewater forms of D008 waste, EPA would be exceeding its authority to regulate hazardous waste under RCRA. Whenever a characteristically hazardous waste such as D008 is treated below the characteristic level, that waste is no longer considered a hazardous waste for regulatory purposes. Moreover, the proposed treatment standard of 0.04 mg/l is significantly lower than the characteristic level and constitutes approximately one-fifth of the technology-forcing effluent guidelines established for the industry under the Clean Water Act. Accordingly, the more representative treatment standard for wastewater forms of D008 waste is the characteristic level.

Comment Number: 9- A -3 continued
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

Alternatively, EPA has proposed setting the treatment standard for nonwastewater forms of D008 at the characteristic level of 5.0 mg/l of lead. The SLSA supports EPA's proposal to set the treatment standard for D008 wastes at the characteristic level.

The characteristic level is the more appropriate treatment standard because this level is the one used to determine whether a waste is hazardous. Unlike a listed hazardous waste, treating a characteristically hazardous waste to a level below the characteristic level would render that waste nonhazardous for regulatory purposes. Accordingly, EPA would be exceeding its authority under RCRA to regulate hazardous waste by setting a treatment standard for D008 waste below the characteristic level of 5.0 mg/l.

COMMENT NUMBER: 9-A-3

DOCKET NUMBER: LD12-00161

COMMENTER: ANDREWS AND KURTH

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

The data available to EPA show that a treatment standard below the characteristic level is achievable for D008 wastewaters.

The Agency is promulgating the D008 wastewater treatment standard to the characteristic level in order not to disrupt the NPDES and UIC programs.

For a specific response to the commenter's assertion that EPA does not have authority to regulate below the characteristic level, refer to CAD's response to comments background document.

Comment Number: 9-A-4
Docket Number: LD12-00028
Commenter: Intermet Foundries, Inc.
Issue: Lead Wastes
Subissue: Characteristic Level as treatment standard
Comment:

Another concern is with the regulated levels established for the D008 wastes. The first part of the concern deals of course with the obvious dissimilarity of the waste streams, as discussed above. Another part of our concern is that while treatment levels of <5 mg/l can be achieved sometimes we believe that documentation exists which shows it cannot be achieved with any regularity. We do not believe that the technology currently exists to treat the D008 wastes consistently to a level lower than the currently regulated level of 5 mg/l.

Due to the short time allotted for comments on this very detailed proposal we are only able to submit these brief comments. We would encourage your consideration of extending the comment period in order for us and other foundries to comment further and provide you with information which we feel would give you a more detailed understanding of the foundry industry and the types of wastes it produces.

COMMENT NUMBER: 9-A-4

DOCKET NUMBER: LD12-00028

COMMENTER: INTERMET FOUNDRIES, INC.

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

With regard to the request to extend the comment period, the Agency provided 45 days to comment. For those requesting copies of data, an additional 21 days were provided. This period allowed for substantial comments as evidenced by the large volume of comments received by the Agency.

For a specific response to the commenter's assertion that EPA does not have authority to regulate below the characteristic level, refer to CAD's response to comments background document.

Comment Number: 9-A-51
Docket Number: LD12-00042
Commenter: American Foundreymen's Society, Inc.
Issue: Lead Wastes
Subissue: Characteristic level as a treatment standard
Comment:

At the very least, the Agency should set the treatment standard no lower than the characteristic level, as discussed at page 48438 of the proposal. We reserve our right to address these and other issues in further detail before expiration of the comment period.[1]

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[1] We understand that an extension has been sought by the Secondary Lead Smelters Association. We support that request for the reasons stated therein and for the fundamental reason that the Agency's land ban proposal could have a crippling effect upon the foundry and ingot industries -- an effect which cannot adequately be explained in the limited time which the Agency has made available. This is particularly true because the TCLP final rule, the content of which is essential to an evaluation of the impact of the Agency's November 22 proposal, has not yet been promulgated.

COMMENT NUMBER: 9-A-5

DOCKET NUMBER: LD12-00042

COMMENTER: AFS

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

See section 3C of today's final rule.

Comment Number: 9 — A - 6
Docket Number: L012-00049
Commenter: RMT
Issue: Lead
Subissue: Characteristic level as treatment standard
Comment:

BDAT treatment standards which are below the EP Toxicity level are inconsistent. Wastes where lead and cadmium are below the EP-Toxic level, but above the treatment criteria, are allowed to be disposed without treatment. Why should wastes that leach lead at over the EP-Toxic level be required to be treated to a lower level? By the federal definition, if the waste leaches lead or cadmium at below the EP-Toxic level, it is nonhazardous. EP-Toxic wastes are EP-Toxic because they leach metals at over the criteria and are different from listed wastes in this regard. If a waste that leaches less than 5 mg/L lead or 1 mg/L cadmium does not pose a threat to the environment when land disposed, why should a treated waste that leaches lead at the same level pose a threat when disposed in the same manner?

COMMENT NUMBER: 9-A-6

DOCKET NUMBER: LD12-00049

COMMENTER: RMT

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

For a detailed discussion of whether the Agency has authority to regulate below the characteristic level, see the preamble in section 3C.

Comment Number: 9-A-7
Docket Number: LD12-00082
Commenter: Schuylkill Metals Corporation
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

However, the treatment standard will have to be increased substantially from the proposed .51 mg/l to in excess of 5.0 mg/l.'

COMMENT NUMBER: 9-A-7

DOCKET NUMBER: LD12-00082

COMMENTER: SCHUYLKILL METALS CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes, the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-A-8 ✓

Docket Number: LD12-00089

Commenter: Mill Service, Inc.

Issue: Lead Wastes

Subissue: Characteristic level as treatment standard

Comment:

Proposed Concentration Levels - In several instances, EPA has requested comment on whether it should establish metal waste treatment standards at the characteristic levels or at levels below the characteristic levels when the lower levels are achievable using BDAT. Without regard to the intent of the Hazardous and Solid Waste Amendments or the legality of requiring treatment to less than characteristic levels prior to disposal, we believe that establishing metal waste treatment standards at levels below the characteristic levels is unreasonable and imposes significant burdens on characteristic waste generators. It is inconceivable to us that EPA would consider setting standards which will create situations in which treated characteristic wastes will not be permitted to be land disposed because they do not meet the treatment standard while non-hazardous wastes containing the same constituents at higher concentrations will be permitted to be land disposed. We believe that it would be more appropriate for EPA to modify (lower) the characteristic levels for the metal wastes where their treatment technology investigations have determined that lower levels are achievable, thereby creating a uniform standard for the regulated community.

COMMENT NUMBER: 9-A-8

DOCKET NUMBER: LD12-00089

COMMENTER: MILL SERVICE, INC.

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

The point is moot given the treatment standards established in today's rule. However, the apparent disparity noted by the commenter if EPA were to set standards below the characteristic level is no more than a manifestation of EPA dealing with part of a potential problem. The characteristic level is not a precise measure of when a waste ceases to be hazardous or ceases to pose a threat.

Comment Number: 9-A-9
Docket Number: LD12-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

EPA has proposed regulatory alternatives requiring treatment of lead-bearing wastes to constituent levels below those at which the waste would be considered hazardous. LIA submits that the treatment standard for lead-bearing wastes should be limited to 5.0 mg/l, the lead level in EPA's hazardous waste toxicity test. EPA has no authority to require waste treatment to constituent levels lower than necessary to ensure that the waste would not be considered hazardous under EPA's regulations.

Comment Number: 9-A-9 continued
Docket Number: LD12-001.01
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

EPA Cannot Require Waste Treatment Beyond That Necessary To Ensure That The Waste Is Not Hazardous Under EPA's Regulations.

EPA is considering a treatment standard for lead-bearing wastes of 5.0 mg/l, the lead level in EPA's hazardous waste toxicity test. In the alternative, however, the agency proposes various standards below the lead toxicity characteristic. LIA urges adoption of the 5.0 mg/l standard and submits that EPA has no authority to require treatment to a lower level.[1]

EPA's proposed alternatives are based on RCRA Section 3004(m), which governs establishment of standards for treatment of hazardous waste prior to land disposal. EPA recognizes the "legal argument" that "Section 3004(m) applies only to wastes that are hazardous, and by EPA's regulations wastes that no longer exhibit a characteristic are not hazardous wastes" (54 Fed. Reg. 548490). Nevertheless, the contrary proposal is justified as "the most literal reading of Section 3004(m)" (*id.*).

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[1] These comments should not be construed as an endorsement of the EP toxicity test for lead or the proposed toxicity characteristic leaching procedure. As LIA previously has documented, both of these tests result in unrealistically high extract values for lead. See Comments of LIA on TCLP Proposal, August 13, 1987.

Comment Number: 9-A-9 continued
Docket Number: L012-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Characteristic level as treatment Standard
Comment:

LIA submits that EPA's interpretation puts the cart before the horse. Section 3004(m) does not, by its own terms, allow EPA to require treatment of nonhazardous waste. More importantly, it is only a relatively minor provision of an entire statutory subtitle for regulation of hazardous waste (RCRA Subtitle C), all of which depends expressly on EPA's regulations for identifying hazardous waste. Under RCRA Section 3001(b)(1), only those wastes identified as hazardous pursuant to EPA's regulations "shall be subject to the provisions of this subtitle [C]." Section 3004(a), which provides general authority for regulation of treatment, storage or disposal facilities, applies only to "hazardous waste identified or listed under this subtitle."

Comment Number: 9-A-9 continued
Docket Number: LD12-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

The land disposal provisions in Section 3004 similarly apply only to waste listed or identified as hazardous under EPA's regulations. Section 3004(g)(4) requires EPA to make a land disposal determination only for "all such listed wastes and for all hazardous wastes identified under Section 3001." Section 3004(g)(5), which imposes the land disposal prohibition, applies only "for as long as the waste remains hazardous." The statutory "hammers" in Section 3004(g)(6) apply only to "hazardous waste." Nothing in Section 3004(m), which governs treatment standards, contradicts this statutory scheme. The only requirement of Section 3004(m) is that treatment standards must "substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." This is a far cry from authority to regulate waste that would not otherwise be subject to subtitle C, and there is no "literal interpretation" under which such authority can be gleaned.

Comment Number: 9-A-9 continued
Docket Number: LD12-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Charatteristic levels as treatment standard
Comment:

The legislative history of the land disposal provisions likewise supports limitation of treatment standards to the constituent levels specified in EPA's hazardous characteristics tests. The relevant Committee reports mention only treatment of hazardous waste, and give no indication of any authority to require treatment below the hazardous characteristic levels.[2] Furthermore, the House Report specifically endorses use of characteristics test as a benchmark for the land disposal prohibition:

> "EPA could also develop a set of characteristic tests along the lines of those used for determining whether the waste is hazardous in order to determine whether a waste should be banned from land disposal. These characteristic tests would presumably measure toxicity, persistence, mobility, and/or propensity to bioaccumulate" (House Report at 33).

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[2] See H.R. Rep. No. 198, 98th Cong., 2d Sess. 31 (1984) (House Report); H.R. Rep. No. 1133, 98th Cong., 2d Sess. 80, 82 (Conference Report).

Comment Number: 9-A-9 continued
Docket Number: LD12-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

The Report also indicates that any special tests for purposes of the land disposal ban would include limits above, not below, those in EPA's tests for identifying hazardous waste. For example, in discussing the statutory concentration limits for California List wastes, the Committee was "satisfied that these levels are a reasonable regulatory starting point and, at levels 10,000 times the National Primary Drinking Water Standards, are conservative" (House Report at 35). The California List levels in the statute are 100 times the concentration levels in EPA's waste toxicity test, which sets the concentration level at 100 times the applicable drinking water standard.

EPA has stated a concern that "the EP toxicants concentrations are levels at which a waste clearly presents a substantial hazard, and that the lower levels also may pose a hazard" (54 Fed. Reg. 48490). This ignores the fact that after a waste is treated to meet an applicable standard, if it remains hazardous it still must be deposited in a subtitle C facility designed essentially to permit no migration of hazardous constituents. If it is not hazardous, it must be placed in a subtitle D facility subject to such restrictions as Congress deemed necessary for nonhazardous wastes. EPA's proposal to require treatment below characteristic levels essentially reads subtitle D out of the Act and imposes the hazardous waste regulatory regime on nonhazardous wastes. There is no legal basis for such a proposal.

Comment Number: 9-A-9 continued
Docket Number: LD12-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

Wastewater Subcategory

The agency's proposed standard of 0.04 mg/l for D008 wastewater is not consistently achievable using the best demonstrated available technology, as data recently submitted by the Battery Council International establish.[3/] These data show that well-designed and well-operated commercial facilities using BDAT obtain treatment levels no lower than 0.50 mg/l 99 percent of the time. Further, the data demonstrate that the EPA's preferred chemical precipitation method (Carbonate (soda ash) precipitation, settling, and filtration) performs no better than the lime-based chemical precipitation treatment generally used by the industry. LIA accordingly opposes the agency's proposed 0.04 mg/l standard as unrealistic, and, in addition, opposes any effort to require the use of one particular chemical precipant over another for D008 wastewater treatment. LIA supports adoption of the characteristic level as the D008 wastewater treatment standard.

[3/] See letter to RCRA Docket Section (OS-305) from Kurt J. Olson dated December 22, 1989.

Comment Number: 9-A-9 continued
Docket Number: LD12-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

Low Lead Subcategory

The agency has proposed a treatment standard of 0.51 mg/l of lead for D008 nonwastewaters that contain less than 2.5% of total lead. This standard is unsound and impractical, and should be rejected in favor of the characteristic level of 5.0 mg/l.

The 0.51 mg/l standard was developed in reliance on treatment data for waste codes from other industries. As discussed in detail in the comments of the Battery Council International ("BCI") and the Secondary Lead Smelters Association ("SLSA"), these industries are not reliable surrogates for D008 waste handled by the lead recycling industry. Moreover, treatment data for the lead recycling industry are now available and are plainly the more supportable source for treatment standards for that industry.

Reliance on the proper data still does not obviate all the problems with EPA's proposed treatment standard. As noted by the BCI, the designated stabilization procedure actually increases disposable waste and is inconsistent with the waste reduction goals of both the rule and recently introduced legislation.

COMMENT NUMBER: 9-A-9
DOCKET NUMBER: LD12-00101
COMMENTER: LEAD INDUSTRIES ASSOCIATION
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

For a specific response to the commenters' assertion that EPA does not have authority to regulate below the characteristic level, refer to CAD's response to comments background document.

The Agency is promulgating the D008 wastewater to the characteristic level in order not to disrupt the NPDES and UIC programs.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Several commenters have stated that the chemical precipitant should not be specified for treatment of D008 wastewaters. EPA has data showing that carbonate and sulfate are not the only effective precipitants for

COMMENT NUMBER: 9-A-9 (Continued)
DOCKET NUMBER: LD12-00101
COMMENTER: LEAD INDUSTRIES ASSOCIATION
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

lead in D008 wastewaters and has therefore decided not to promulgate requirements related to the use of certain chemical precipitants for treatment of these wastes. Treaters of D008 are free to select any precipitating agent that meets the promulgated treatment standard of 5.0 mg/l for treatment of D008 wastewaters.

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period indicating that waste containing greater than 2.5 percent lead can be stabilized. Therefore, the Agency does not believe that the 2.5 percent cutoff level is a means of determining what waste is recyclable or can be stabilized. Consequently, the Agency has decided not to promulgate the cutoff level for lead.

Comment Number: 9-A-10
Docket Number: LD12-00104
Commenter: The Wheland Foundry
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

BDAT treatment standards which are below the EP-Toxicity level are inconsistent. Wastes in which lead and cadmium are below the EP-Toxic level, but above the proposed treatment criteria, are allowed to be land disposed without treatment. Why should wastes which leach lead at over the EP-Toxic level be required to be treated to the much lower level proposed in the November 22, 1989 Federal Register? By the federal definition of hazardous waste, a waste which leaches lead or cadmium less than the EP-Toxic level, is nonhazardous. EP-Toxic wastes are considered hazardous because they leach metals in excess of the EP-Toxic criteria and are different from listed wastes in this regard. If an untreated waste that leaches less than 5 mg/L lead or 1 mg/L cadmium does not pose a threat to the environment when land disposed, and thus is exempted from the proposed treatment criteria, why should a treated waste that leaches lead at the same level be subject to more stringent regulation when disposed of in the same manner?

COMMENT NUMBER: 9-A-10
DOCKET NUMBER: LD12-00104
COMMENTER: WHELAND FOUNDRY
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes, the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency is promulgating treatment standards for D008 wastewaters to the characteristic level. The data available to EPA show that a treatment below the characteristic level is achievable for D008 wastewaters. The Agency has decided not to regulate below the characteristic level in order not to disrupt the NPDES and UIC programs.

For a specific response to the commenter's assertion that EPA does not have authority to regulate below the characteristic level refer to CAD's response to comments background document.

Comment Number: 9-A-11
Docket Number: LD12-00117
Commenter: Exide Corporation
Issue: Lead
Subissue: Characteristic Level as Treatment Standard
Comment:

Proposed Treatment Standards for D008 Wastewater Subcategory

For wastewater forms of D008 wastes, EPA has proposed a BDAT treatment standard of 0.04 mg Pb/l based upon precipitation technology. EPA, alternatively, has proposed the characteristic level of 5.0 mg Pb/l as the BDAT treatment standard.

As discussed in previous comments, it is Exide's belief that EPA's proposal to set a treatment standard below the characteristic level for D008 wastes exceeds EPA's authority to regulate hazardous wastes under the Resource Conservation and Recovery Act. In addition, the proposed BDAT treatment standard of 0.04 mg Pb/l is appreciably lower than the technology-based effluent guidelines which were developed by EPA for the lead-acid battery manufacturing industry and the nonferrous metals manufacturing (secondary lead smelting) industry under the Clean Water Act.

Exide Corporation is aware that the Battery Council International (BCI) has recently submitted data to EPA to provide justification that the characteristic level is more appropriate as a BDAT treatment standard for the D008 wastewater subcategory. Exide Corporation supports the BCI position.

Comment Number: 9-A-11
Docket Number: L012-00117
Commenter: Exide Corporation
Issue: Lead
Subissue: Characteristic level as treatment standard
Comment:

Treatment Below Characteristic Levels.

EPA's proposed regulations, among other things, establish standards for certain characteristic wastes which would require treatment below the characteristic level. For example, a D008 characteristic waste in the low lead subcategory (e.g., less than 2.5% lead) would be required to be treated (stabilized) to achieve a concentration of 0.51 mg Pb/l in the leachate from the analysis of a grab sample using the Toxicity Characteristic Leaching Procedure (TCLP). In other words, EPA is proposing to require treatment to the lowest achievable level (e.g., in this example, 0.51 mg Pb/l based upon the TCLP) without regard to the characteristic level (e.g., 5.0 mg Pb/l based upon the EP toxicity test) and without regard to the fact that a characteristic hazardous waste is no longer considered hazardous when it falls below the characteristic concentration.

Although Exide Corporation has not undertaken an extensive legal review of this matter due to the short time period which the EPA has allowed industry to review and comment on this complex proposal (40 days, but including the Christmas and New Year's holiday, for review of more than 150 pages of *Federal Register* text), it is Exide Corporation's initial reaction to this issue that the characteristic level itself imposes a jurisdictional limitation on the extent of treatment which can be required by EPA. Due to the significant implementation problems which will be encountered by industry in attempting to comply with the proposed treatment standards, it is Exide Corporation's belief that it would be a more prudent decision for EPA to promulgate a final rule which does not go below characteristic levels, at least as an interim approach until EPA and industry can fully address the significant implementation problems.

COMMENT NUMBER: 9-A-11
DOCKET NUMBER: LD12-00117
COMMENTER: EXIDE CORPORATION
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

The Agency is promulgating treatment standards for D008 wastewaters to the characteristic level. The data available to EPA show that treatment below the characteristic level is achievable for D008 wastewaters. The Agency has decided not to regulate below the characteristic level in order not to disrupt the NPDES and UIC programs.

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

Comment Number: 9-A-12
Docket Number: LD12-00130
Commenter: Wayne Disposal, Inc.
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

Thus we are in support of the Agency's regulation of these wastes so that treated wastes no longer exhibit the hazardous characteristic (5.0 mg/L) prior to land disposal.

COMMENT NUMBER: 9-A-12
DOCKET NUMBER: LD12-00130
COMMENTER: WAYNE DISPOSAL INC.
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes, the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-A-13
Docket Number: LD12-00153
Commenter: Andrews & Kurth
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

2. Stabilization BDAT

Relying on treatment data for other waste codes from other industries, EPA has proposed a treatment standard of 0.51 mg/l of lead for nonwastewater forms of D008 that contain less than 2.5% of total lead. Alternatively, EPA has proposed setting the treatment standard for nonwastewater forms of D008 at the characteristic level of 5.0 mg/l of lead. Hammond Lead supports EPA's proposal to set the treatment standard for D008 wastes at the characteristic level.

The characteristic level is the more appropriate treatment standard because this level is the one used to determine whether a waste is hazardous. Unlike a listed hazardous waste, treating a characteristically hazardous waste to a level below the characteristic level would render that waste nonhazardous for regulatory purposes. Accordingly, EPA would be exceeding its authority under RCRA to regulate hazardous waste by setting a treatment standard for D008 waste below the characteristic level of 5.0 mg/l.

Furthermore, the proposed treatment standard of 0.51 mg/l is not appropriate for D008 waste. This is particularly true for wastes such as used refractory bricks from the furnaces at Hammond Lead. This treatment standard was developed by relying on treatment data for other waste codes from other industries. While these data may provide sufficient justification for the applicable treatment standards for these other waste codes and industries, they are not appropriate for establishing a BDAT for D008 wastes.

COMMENT NUMBER: 9-A-13
DOCKET NUMBER: LD12-00153
COMMENTER: ANDREWS AND KURTH
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

For detailed information of the Agency's authority to go lower than the characteristic level, see today's preamble.

The Agency does agree that refractory bricks are within a separate treatability group within the inorganic soil and debris group for metal wastes. Therefore, the Agency has granted a two-year capacity variance. For detailed information, refer to today's rule.

Comment Number: 9-A-14
Docket Number: LD12-00162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

E. The Proposed Treatment Limit for D008 Wastewaters is Not Achievable

EPA has proposed a BDAT for lead-bearing wastewaters of 0.04 mg/l. EPA has alternatively proposed the characteristic level of 5.0 mg/l of lead as the BDAT for D008 wastewaters. The 0.04 mg/l proposed standard is not achievable. RSR thus urges EPA to establish the characteristic level for lead as the treatment standard for these wastewaters.

RSR has in-place a treatment technology that involves co-precipitation of wastewater metals with iron hydroxide. RSR adopted this treatment system to minimize sludge disposal by producing an on-site recyclable sludge. Iron matrix sludges, unlike calcium sulfate matrix sludges, are not refractory in nature, are amenable to on-site smelting, and thus are not solid wastes. See 40 C.F.R. § 261.2(c)(3). The effluent discharge from this treatment technique is not significantly different from that of lime or carbonate treatment technology.

Comment Number: 9-A-14 continued
Docket Number: LD12-00162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

EPA has solicited comment on the use of secondary lead Clean Water Act effluent guideline limits as BDAT standards. RSR has several comments. First, these effluent limitations are reportedly based on a "demonstrated" lime precipitation technology that produced maximum daily standards for secondary lead of 0.28 mg/l of lead. The Battery Council International ("BCI") submitted wastewater data on December 22, 1989, in response to EPA's request for data.[8] Review of those data with RSR's data reveals no significant difference in data sets. Collectively, these data prove conclusively that three in-use treatment technologies representing three different approaches to the treatment of wastewater from secondary lead manufacturing facilities produced effluent of comparable quality. These levels achieved no where approached EPA's proposed standard of 0.04 mg/l. This proposed limit is thus neither "demonstrated" nor achievable for the secondary lead industry. The BDAT for lead in wastewaters must, therefore, be a level significantly higher than 0.04 mg/l. RSR urges EPA to establish the characteristic level of 5.0 mg/l as the BDAT for D008 wastewaters.

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[8] _See_ letter and attachments from K. Olson to RCRA Docket (December 22, 1989).

Comment Number: 9-A-14 continued
Docket Number: LD12-00162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

EPA should also recognize that state-of-the-art analytical methods do not allow quantification of lead at 0.04 mg/l in many wastewaters (e.g., those wastewaters with relatively high concentrations of dissolved solids). Thus it would be impossible to assess compliance for these wastewaters at ~~a BDAT~~ level of 0.04 mg/l.

Finally, EPA's reliance on data used to develop the effluent standards is inappropriate for purposes of establishing treatment standards intended to discourage the land disposal of hazardous waste. Lime precipitation technology utilized in the secondary lead industry yields significant quantities of hydrated calcium sulfate sludge contaminated with metals. RSR believes these sludges are typically land disposed, and it has no knowledge of any being recycled. In promulgating the effluent limitations for the secondary lead industry, EPA specifically acknowledged that 10 percent excess lime use is necessary to assure that this sludge is not EP toxic for metals. See 49 Fed. Reg. 8777 (March 8, 1984). This excess lime necessarily increases significantly the quantities of sludge destined for land disposal. Moreover, the effluent standards assume the use of lagoons for sedimentation and sludge storage. Id. at 8772. Accordingly, the effluent guidelines limitations are premised on assumptions that are wholly inconsistent with the objectives of discouraging the land disposal of regulated wastes. Reliance on data used to develop those limitations is misplaced and inappropriate.

COMMENT NUMBER: 9-A-14
DOCKET NUMBER: LD12-00162
COMMENTER: RSR
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes, the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency disagrees with the commenter's statement that the use of effluent standards is inappropriate for developing treatment standards. Effluent Guidelines data were used to develop concentration-based standards for industry that represented the Best Available Technology. These industries can generate waste that exhibits a characteristic, and therefore the Agency may use the Effluent Guidelines data to develop treatment standards.

The Agency disagrees with the commenter's statement that quantification of lead at 0.04 mg/l in wastewaters is not possible. The Agency believes that using Method 7421, an approved SW-846 method, on an aqueous sample free of interferences, a detection limit of 1 microgram per liter (ppb) can be achieved. An optimum concentration range of 5 to 100 ppb is achievable.

Comment Number: 9-A-15
Docket Number: LD12-00022
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

2. Treatment Standard Should Be Set At Characteristic Level

The Agency's analysis of the health benefits of the proposed treatment standards for D006 and D008 does not warrant setting treatment levels lower than the existing characteristic level. Of the 148 reduced cancer cases the Agency estimates as human health benefit from the proposed regulation, less than one is from the treatment standard for lead and less than one is from the treatment standard for cadmium. In addition, of the 34,721 people whom the Agency believes will be removed from exposure above reference doses, none of them will experience any change in their exposure to lead and less than one tenth of one percent of them will experience any change in their exposure to cadmium. The proposed treatment standards for lead and cadmium essentially provide little or no added benefit to human health when compared to the existing characteristic levels.

The present standard for EP toxicity for lead is 5.0 mg/l, and for cadmium it is 1.0 mg/l. These standards are adequate, and the proposed land ban regulations do not warrant the proposed standard of 0.51 mg/l for lead and 0.14 mg/l for cadmium. The proposed regulation states that if a generator exceeds 5.0 mg/l for lead or 1.0 mg/l for cadmium, then the generator must treat to the reduced levels as stated in the proposal. However, if the generator is able to treat within the process and the end result is a waste that is less than 5.0 mg/l for lead or 1.0 mg/l for cadmium, then no additional treatment is necessary.

Since the treatment process for a waste treated before collection and one treated after may be the same, and the only difference between the two treated wastes is the point of addition, it is inconsistent that one of the wastes can be disposed as a non-hazardous waste while the other waste cannot be disposed without further treatment.

In Section 1 of this letter the physical differences between foundry and electroplating wastes were noted. Not every foundry waste stream will fit the above scenario; there are different waste stream sources within the foundry industry. The uniformity of the electroplating waste may have made consistent treatment possible.

However, it was clearly identified in the December 21, 1989 submission by RMT, Inc., that consistent lead and cadmium levels cannot be met for foundry wastes when attempting to achieve the proposed treatment standards.

COMMENT NUMBER: 9-A-15
DOCKET NUMBER: LD12-00222
COMMENTER: AFS
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-A-14
Docket Number: LD12-00269
Commenter: ASARCO
Issue: Lead Wastes
Subissue: Characteristic level as treatment standard
Comment:

B. EPA Has Failed To Demonstrate That Treatment of Characteristic Wastes Beyond the Point at Which Those Wastes Cease to Exhibit A Characteristic Is Necessary to Minimize Risks to Human Health and the Environment

EPA's proposal to require the treatment of characteristic wastes beyond the point at which those wastes cease to exhibit a characteristic does not contain any evidence to support EPA's conclusion that such treatment is required to minimize risks to human health and the environment. Although the EP toxicity characteristic is defined by levels higher than the health-based levels that have been the basis for delisting hazardous wastes, this isolated fact, without any additional technical support, does not justify the inference that characteristic wastes cause the same risks as listed wastes. This inference fails to take into account the likely exposure routes through which and concentration levels to which human and other environmental receptors are likely to be exposed.

COMMENT NUMBER: 9-A-16
DOCKET NUMBER: LD12-00269
COMMENTER: ASARCO
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

A detailed discussion of the Agency's authority to go below the characteristic level can be found in section 3C.

Comment Number: 9-A-17
Docket Number: LD12 - L0040
Commenter: Fox, Weinburg, + Bennett
Issue: Lead Wastes
Subissue: Characteristic level as treatment data
Comment:

Nevertheless, EPA apparently believes it has the authority to set treatment standards for characteristic wastes below the characteristic level and, given its proposed treatment standard for D008 wastewater (0.04 mg/l), apparently also feels that it is necessary to do so in the case of D008 wastewater. Accordingly, without conceding the issue, BCI recommended in its comments that if a treatment standard below the characteristic level is to be set for D008 wastewater, it can be no lower (and, in fact, should be somewhat higher) than the treatment level set in the effluent guidelines for D008 wastewaters because that level is the best treatment level that technology can achieve. _See_ BCI's January 8, 1990 comments at 6-13.

COMMENT NUMBER: 9-A-17

DOCKET NUMBER: LD12-L0040

COMMENTER: FOX, WEINBERG, AND BENNETT

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

Comment Number: 9A-18✓
Docket Number: LD12-00042
Commenter: American Foundrymen's Society
Issue: Lead Wastes
Subissue: Characteristic Level as treatment standard
Comment:

At the very least, the Agency should set the treatment standard no lower than the characteristic level, as discussed at page 48438 of the proposal. We reserve our right to address these and other issues in further detail before expiration of the comment period.1/

1/ We understand that an extension has been sought by the Secondary Lead Smelters Association. We support that request for the reasons stated therein and for the fundamental reason that the Agency's land ban proposal could have a crippling effect upon the foundry and ingot industries -- an effect which cannot adequately be explained in the limited time which the Agency has made available. This is particularly true because the TCLP final rule, the content of which is essential to an evaluation of the impact of the Agency's November 22 proposal, has not yet been promulgated.

COMMENT NUMBER: 9-A-18
DOCKET NUMBER: LD12-00042
COMMENTER: AFS
ISSUE: Lead Wastes
SUBISSUE: Characteristic level as treatment standard
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-A-19

Docket Number: LD10-00049

Commenter: Andrews & Kurth

Issue: Lead Wastes

Subissue:

HLP is particularly interested in your discussion of the treatment standards for characteristic hazardous waste that affect the lead chemical manufacturing industry. 53 Fed. Reg. 1093-1100. Although no formal land disposal restrictions have been proposed for characteristic hazardous waste, HLP supports the approach in which the "hard hammer" provisions of the land ban would not be implemented for such wastes. Treatment standards consistent with the lead chemical manufacturing industry's waste management practices should be established to allow these characteristic hazardous wastes to be land disposed. HLP intends to submit additional comments in the future regarding the appropriate land disposal restrictions and treatment standards for the lead chemical manufacturing industry.

COMMENT NUMBER: 9-A-19

DOCKET NUMBER: LD10-00049

COMMENTER: Andrews and Kurth

ISSUE: Lead Wastes

SUBISSUE: Characteristic level as treatment standard

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represents the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. With the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP and the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes, the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-B-1
Docket Number: LD12-00131
Commenter: TISCHLER/KOCUREK
Issue: LEAD WASTES
Subissue: WASTEWATERS - TREATMENT DATA
Comment:

Tyler Pipe operates a gray iron foundry, which recycles scrap iron as its feedstock. A large fraction of the feed material are internal combustion engines and their associated parts. These raw materials are melted in two coke-fired cupolas and the resulting gray iron is used to make cast iron pipe and fittings. The gases from the cupolas are cleaned in venturi scrubbers, and the resulting scrubber blowdown contains heavy metals, principally lead and zinc, that are contaminants in the scrap iron feed. The concentration of lead in the scrubber blowdown exceeds the EP toxicity characteristic value for lead, and thus the wastewater is a D008 waste.

In 1988, Tyler Pipe installed completely new treatment facilities to treat the scrubber wastewaters and render them nonhazardous. The treatment system is a totally above-ground, two-stage lime precipitation system. About 80 percent of the clarified scrubber water is recycled directly to the venturi scrubbers. The remainder of the clarified scrubber water is filtered in a granular media filter and discharged to another clarifier that treats the remainder of the foundry's wastewaters (nonhazardous). The treated wastewater contains lead concentrations of less than 0.2 mg/L, and thus is nonhazardous.

Tyler Pipe has developed a coagulant dosage procedure for this system, which is based on the use of high-magnesium content lime, which renders the resulting precipitated sludge nonhazardous based on the characteristic level for D008. The EP leachate from this sludge contains concentrations of 0.5 to 2 mg/L lead. These sludges are dewatered on a belt press and disposed of in a permitted, Subtitle C landfill that is owned and operated by Tyler Pipe. However, once Tyler Pipe has demonstrated to its and the state's satisfaction that the process will consistently produce nonhazardous sludge, it will open a new Subtitle D landfill.

On December 19, 1989, Tyler Pipe submitted operating data for this system to the RCRA Docket for this rule. As discussed in these comments, and as will be evident from the data submitted to EPA, the proposed rule could have serious impacts on the new treatment system, which was especially designed to meet RCRA standards and achieve the goal of producing nonhazardous wastes.[1]

Comment Number: 9-B-1 continued
Docket Number: LD12-00131
Commenter: TISCHLER/KOCUREK
Issue: LEAD WASTES
Subissue: WASTEWATERS - TREATMENT DATA
Comment:

The proposed limit for lead in D008 nonwastewaters, which is based on K062 wastewater, is unachievable. This is documented by the Tyler Pipe data and the Office of Water treatability data that are used to develop the alternate multisource leachate standards.

The K062 wastewater data, which EPA admits were based on treating a wastewater with low lead concentrations, were used to propose a treatment standard of 0.04 mg/L, expressed as a grab sample concentration [III.A.5.f.(1)]. The technology used at the single facility tested by EPA was chemical reduction and lime precipitation. Six of the 11 untreated waste samples in this data base had undetectable lead concentrations (Tables 3-1 through 3-11, proposed BDAT background document, LDR7-S0348, April 1988). Therefore, the treatment performance for this system reflects a wastewater that at times contained no lead, and it thus represents a very unreliable basis for establishing treatment standards.

As indicated earlier, Tyler Pipe has provided treatment performance data showing the performance of its wastewater treatment system, which is more sophisticated than the K062 treatment system. Tyler Pipe uses two stages of lime precipitation (the K062 system is single-stage) and has a polishing granular media filter (the K062 system has no filter). Even with this system, and with over 15 years operating experience with lime precipitation of metals, Tyler Pipe cannot achieve the proposed BDAT limit for wastewaters. This inability to achieve the proposed limits is due to the differences between Tyler Pipe's wastewater matrix and the K062 waste, not to any design or operational difference. It is proof of the validity of EPA's concern that its BDAT standards based on the *lowest* demonstrated treatment levels for a constituent may not be achievable for all wastes exhibiting a given characteristic.

If the Agency establishes a treatment standard for D008 wastewaters that is different from the characteristic level, it should be based on the Tyler Pipe data, and similar data from the foundry industry which represent a difficult-to-treat wastewater matrix.

Comment Number: 9-B-1 continued
Docket Number: LD12-00131
Commenter: TISCHLER/KOCUREK
Issue: LEAD WASTES
Subissue: Wastewaters - Treatment Data
Comment:

The Office of Water Industrial Technology Division (ITD) data that are used to develop the alternate treatment standard for lead in wastewaters are based on long-term performance data from treatment systems that are identical to the K062 system, but which represent a wide range of wastewater characteristics [Table 4-125, Background Document for wastewaters containing BDAT list constituents (LD12-S1061)]. The ITD data offer additional documentation, if any is needed, that the proposed D008 wastewater limits are not achievable. The BDAT concentration calculated for lead using the ITD data is 0.28 mg/L (page 4-234, LD12-S1061) — seven times higher than the proposed limit based on K062 wastewaters.

Even the alternate lead wastewater concentration calculated with the ITD data may be unachievable for some wastes, however, because of the averaging that the Agency did to develop it. The median of three long-term average concentrations from the ITD data base was selected and then multiplied by a combined variability factor to develop the lead standard for wastewaters (page 4-234 and 235, LD12-S1061). Based on an extensive analysis of the performance of lime-sedimentation technologies for the Metal Molding and Casting (Foundries) Point Source Category, EPA promulgated BAT effluent limitations guidelines based on a daily maximum lead concentration of 0.79 mg/L (Table VII-12, EPA 440/1-85/070, October 1985). This concentration limit is based on long-term performance data from 5 foundries treating D008 wastewaters with EPA's specified BDAT method, and is a good illustration of the difficulty in establishing a treatment level for *all* wastes that may exhibit the D008 characteristic. If EPA had based the proposed alternate wastewater standard for lead on the highest long-term average from the ITD data shown on Table 4-125 (page 4-235, LD12-S1061), it would have obtained essentially the same limit as the ITD has promulgated for the foundry BAT limits.

COMMENT NUMBER: 9-B-1
DOCKET NUMBER: LD12-00131
COMMENTER: TISCHLER-KOCUREK
ISSUE: Lead Wastes
SUBISSUE: Wastewater treatment data
RESPONSE:

This commenter submitted 15 data points for lead in wastewaters. Influent concentrations ranged from 50 to 276 mg/l. Effluent concentrations ranged from 0.17 to 0.42 mg/l. The calculated variability factor is 1.76. The Agency calculated a treatment standard from these data of 0.51 ppm, indicating excellent treatment (50 percent of foundry BAT). These treatment data clearly show that the performance of the treatment system can achieve levels below the characteristic level.

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

Comment Number: 9-B-2

Docket Number: LD12-00143

Commenter: GENERAL MOTORS CORPORATION

Issue: Lead Wastes

Subissue: Wastewaters - Treatment Data

Comment:

Additionally, utilization of previously established wastewater treatment guidelines provides, at a minimum, consistency with previously established technology. For example, the Battery Wastewater Pretreatment Guidelines for Lead (August 28, 1986), established as a mass standard, were based on a maximum lead concentration at the 99 per cent treatability factor, not to exceed 0.42 mg/l of lead.

However, if EPA does not establish the treatment standard for lead D008 wastewaters at the existing characteristic level of 5.0 mg/l, we recommend a standard equal to the wastewater treatment guidelines (i.e. 0.42 mg/l).

COMMENT NUMBER: 9-B-2

DOCKET NUMBER: LD12-00143

COMMENTER: GENERAL MOTORS CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Wastewater treatment data

RESPONSE:

The data available to EPA show that a treatment standard of below 5.0 mg/l is achievable for D008 wastewaters. Because the Agency does not wish to disrupt the NPDES and UIC programs, the Agency is promulgating the treatment standard at the characteristic level for D008 wastewaters.

Comment Number: 9-B-3 ✓
Docket Number: LD12-00178
Commenter: BATTERY COUNCIL INTERNATIONAL
Issue: Lead Wastes
Subissue: Wastewaters - Treatment Data
Comment:

IV. D008 -- EP TOXIC FOR LEAD

A. Wastewaters

EPA proposes two alternative treatment standards for D008 wastewaters: the characteristic level, 5.0 mg/l, or a treatment standard of 0.04 mg/l. 54 Fed. Reg. 48438. For the reasons discussed above, BCI submits that the Agency must adopt the characteristic level. However, even if EPA has the authority to adopt a treatment standard below the characteristic level, BCI submits that there are well-documented, practical reasons why the proposed 0.04 mg/l treatment standard cannot be adopted. Moreover, BCI also submits that if a standard is set below the characteristic level, it should be no less than the standards established in the effluent guidelines covering battery manufacturing and secondary smelting facilities.

1. The 0.04 mg/l Proposed Treatment Standard Is Not Achievable

EPA asserts that the 0.04 mg/l proposed treatment standard is the performance level that can be achieved for D008 wastewaters using BDAT. 54 Fed. Reg. 48440. According to the Agency, BDAT for D008 wastewater is chemical precipitation and filtration.[5] Id. at 48438. Chemical precipitation and filtration is the same treatment technology EPA used to establish the effluent limitations guidelines for lead in wastewaters from battery manufacturing and secondary lead smelting operations. Based on the data collected from two well-designed and well-operated facilities and the EPA Combined Metals Database, the effluent limitations guidelines for lead set a daily maximum of 0.28 mg/l and a monthly average of 0.13 mg/l for lime, settling and filtration (LS&F) at secondary smelting operations and a 0.42 mg/l daily maximum and 0.20 mg/l monthly average for lime and settling (L&S) at battery manufacturing operations. Obviously, these performance levels are substantially higher than EPA's proposed BDAT treatment standard of 0.04 mg/l.

5/ Chemical precipitation and filtration includes lime, settling and filtration ("LS&F"), lime and settling ("L&S") and carbonate precipitation, settling and filtration.

Comment Number: 9-B-3 continued
Docket Number: LD12-00178
Commenter: BATTERY COUNCIL INTERNATIONAL
Issue: Lead Wastes
Subissue: Wastewaters - Treatment Data
Comment:

In accordance with EPA's request for data, on December 22, 1989, BCI submitted data on treatment performance levels at battery manufacturing and secondary smelting facilities.[6] These data confirm what is implicit in the effluent limitations guidelines, that the best-run battery manufacturing and secondary lead smelting facilities, which employ the technology used by EPA to establish BDAT, cannot consistently attain a 0.04 mg/l treatment level for their wastewater. The recent data show that regardless of the technology used -- lime and settling (L&S); lime, settling and filtration (LS&F); or carbonate precipitation, settling and filtration -- the best treatment achieved was a 0.50 mg/l maximum for any single grab sample, this represents the 99th percentile. This particular sample comes from Plant II, which was one of the facilities EPA used to establish the effluent guidelines. *See* December 22 Letter Attached Data for Plants I - IV.

The other data BCI submitted to EPA on December 22, 1989, support an even higher BDAT treatment standard than a 0.50 mg/l lead concentration. Plant I, whose data also were used by EPA in establishing the effluent limitations guidelines, uses L&S. Their calculated treatment level is a 0.88 mg/l maximum for any single sample. Using EPA's effluent guidelines method of reducing this number by one-third for filtration, the LS&F level is 0.59 mg/l. Plant III, which employs LS&F has a calculated treatment level of 1.03 mg/l maximum for any single grab sample;[7] and Plant IV, which uses carbonate, settling and filtration, has a maximum single grab sample of 0.56 mg/l.

Accordingly, well-designed and well-operated commercial facilities employing BDAT achieve treatment levels of no less than 0.50 mg/l 99 percent of the time. This result is over ten times higher than the treatment standard proposed by EPA.

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[6] *See* Letter to RCRA Docket Section (OS-305) from Kurt J. Olson dated December 22, 1989 ("December 22 Letter").

[7] The data submitted by BCI on December 22, 1989, stated that Plant III employs L&S, when, in fact, the facility uses LS&F. A technical correction to this effect is being submitted to the Agency along with today's comments.

Comment Number: 9-B-3 continued
Docket Number: LD12-00178
Commenter: BATTERY COUNCIL INTERNATIONAL
Issue: Lead Wastes
Subissue: Wastewaters - Treatment Data
Comment:

In short, today the best-designed and best-run systems can not consistently achieve EPA's proposed treatment standard. Thus, the 0.04 mg/l is not BDAT and therefore cannot be imposed. If a level below the characteristic level is warranted, a condition that BCI does not believe is legally defensible, then the data collected in connection with the promulgation of effluent guidelines, and submitted by BCI on December 22, show that the best technology can achieve more accurately is reflected by the treatment levels established in the effluent guidelines. However, the data submitted on December 22 also show that even the effluent guidelines treatability concentrations are low by an approximate factor of 2.

COMMENT NUMBER: 9-B-3
DOCKET NUMBER: LD12-00178
COMMENTER: BATTERY COUNCIL INTERNATIONAL
ISSUE: Lead Wastes
SUBISSUE: Wastewater treatment data
RESPONSE:

The Agency thanks the commenter for submitting data on lead treatment for wastewaters. The Agency has evaluated the data. These data represent wastewater from Effluent Guidelines from the battery and secondary lead smelters industry. The effluent concentration of lead ranges from 0.01 to 0.85 ppm. The treatment system for the wastewater is lime precipitation, settling, and filtration. The commenter submitted 119 data points. The commenter did not provide corresponding influent and effluent data. The commenter did provide adequate QA/QC data and operating data for the treatment system. Because of the lack of corresponding influent and effluent data, the Agency may be hesitant to use the data to develop BDAT standards if other data were not available. Using the data, the Agency has calculated a treatment standard of 0.6 ppm for lead in D008 wastewaters.

These data clearly show that the performance of the treatment system can achieve levels below the characteristic for D008 wastewaters. The Agency is promulgating a treatment standard at the characteristic level for D008 wastewaters in order not to disrupt the UIC and Effluent Guidelines programs.

Comment Number: 9-B-4
Docket Number: LD12-00035
Commenter: Fox, Weinberg & Bennett
Issue: Lead
Subissue: Wastewaters Treatment Data
Comment:

Re: Data Submission and Request for Data: Land Disposal Restrictions for Third Scheduled Wastes Proposed Rule (Docket No. F-89-LD12-FFFFF) -- D008 Waste Water

Dear Ladies and Gentlemen:

In accordance with the U.S. Environmental Protection Agency's request for data on the treatment standards proposed in the November 22, 1989 Federal Register, 54 Fed. Reg. 48372, 48437, and on behalf of the Battery Council International ("BCI"), attached hereto for submission to the record in the above-referenced rulemaking are data representing treatment of D008 waste water at well-designed and well-operated battery manufacturing facilities and secondary smelters.

The data represents an analysis of compliance composite daily samples taken from the waste streams at four facilities (Plants I - IV) over the period of time indicated. The samples were collected in accordance the procedures established in applicable permits and to prepare the discharge monitoring reports ("DMRs") required under the Clean Water Act.

Comment Number: 9-B-4 continued
Docket Number: L012-00035
Commenter: Fox, Weinberg & Bennett
Issue: Lead
Subissue: Wastewater Data
Comment:

All samples were analyzed using the atomic absorption technique -- EPA Methods 239.1 and 239.2. In each case, the analysis was performed by a laboratory participating in EPA's Water Pollution Study for QA/QC. The laboratory results were statistically analyzed in accordance with the lognormal analysis used by EPA in developing industrial effluent guidelines and the BDAT treatability concentrations for the land disposal restrictions. The results of the statistical analysis are shown for each data set.

The attached data represent waste water treatment at the following: two facilities where the waste streams from a battery manufacturing operation and secondary smelter are combined for treatment purposes ("combined operations") (Plants I & II); one facility where the waste stream was from battery manufacturing only (Plant III); and one facility where the waste stream was from a secondary smelter (Plant IV). The treatment method used at Plants I and III was lime and settling (L&S). Treatment at Plant II was

Comment Number: 9-B-4 continued
Docket Number: LD12-00035
Commenter: Fox, Weinberg & Bennett
Issue: Lead
Subissue: Wastewater Treatment Data
Comment:

lime, settling and filtration (LS&F), and the method used at Plant IV was carbonate precipitation, and settling, and filtration (LS&F). In each case, the treatment system involved is well-designed and well-operated. In fact, data from Plants I and II (the two combined operations) represent current data from the well-designed and well-operated Plants and treatment systems used by EPA to develop the effluent guidelines for battery manufacturing and certain non-ferrous metals industries.

With this data submission, BCI incorporates by reference all data previously submitted or otherwise collected in connection with the promulgation of the effluent guidelines for the battery manufacturing and non-ferrous metals categories. BCI further reserves the right to submit additional data in response to other data submitted on the proposed D008 treatment standards.

COMMENT NUMBER: 9-B-4
DOCKET NUMBER: LD12-00035
COMMENTER: FOX, WEINBERG, & BENNETT
ISSUE: Lead Wastes
SUBISSUE: Wastewater treatment data
RESPONSE:

The Agency thanks the commenter for submitting data on lead treatment for wastewaters. The Agency has evaluated the data. These data represent wastewater from Effluent Guidelines from the battery and secondary lead smelters industry. The effluent concentration of lead ranges from 0.01 to 0.85 ppm. The treatment system for the wastewater is lime precipitation, settling, and filtration. The commenter submitted 119 data points. The commenter did not provide corresponding influent and effluent data. The commenter did provide adequate QA/QC data and operating data for the treatment system. Because of the lack of corresponding influent and effluent data, the Agency may be hesitant to use the data to develop BDAT standards if other data were not available. Using the data, the Agency has calculated a treatment standard of 0.6 ppm for lead in D008 wastewaters.

These data clearly show that the performance of the treatment system can achieve levels below the characteristic for D008 wastewaters. The Agency is promulgating a treatment standard at the characteristic level for D008 wastewaters in order not to disrupt the UIC and Effluent Guidelines programs.

Comment Number: 9-B-5
Docket Number: LD12-L0031
Commenter: Thermal KEM / CyanoKEM
Issue: Lead Wastes
Subissue: Wastewaters - treatment data
Comment:

The data comments of the Battery Council International (BCI) are also deficient in several important respects. Again, contrary to EPA's requirements for BDAT data submittals, no QA/QC data was provided, no untreated waste concentrations, and no details regarding the treatment process. Aside from this, BCI relied only upon lime settling in treating these wastewaters, probably because this is sufficient to comply with their current categorical pretreatment standards. It is well proven, however, that additional reduction in lead concentrations are achievable using sulfide polishing techniques. Sulfide polishing systems for metals treatment of wastewater are widely available and simple to operate (i.e., see Permutit Sulfex$_{TM}$ systems). The comments of the RSR Corporation (Docket 00162) also point out that the .04 PPM standard is not achievable for wastewaters. Although they argue to set the BDAT standard at 5.0 PPM (the characteristic level) their own data shows that a BDAT standard of 0.28 PPM is achievable since this is what they are already complying with under the secondary lead Clean Water Act Effluent Guidelines. We would endorse using the categorical lead standard as BDAT for wastewater as opposed to setting BDAT at the characteristic level, as we do concur that the 0.04 PPM standard for wastewaters is difficult to achieve. The 0.42 PPM limit suggested by GM (Docket #00143, pg. 5) is appropriate, considering that it is a categorical standard, and wastewater data submitted to the LD12 docket supports its achievability.

COMMENT NUMBER: 9-B-5
DOCKET NUMBER: LD12-L0031
COMMENTER: ThermalKEM/CyanoKEM
ISSUE: Lead Wastes
SUBISSUE: Wastewater treatment data
RESPONSE:

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble Section 3C.

Comment Number: 9-B-6
Docket Number: LD12-L0034
Commenter: HWTC
Issue: Lead
Subissue: Wastewater data
Comment:

2. Comments By The Battery Manufacturers

The data comments of the Battery Council International (BCI) are also deficient in several important respects. Again, contrary to EPA's requirements for BDAT data submittals, no QA/QC data was provided, no untreated waste concentrations, and no details regarding the treatment process. Aside from this, BCI relied only upon lime settling in treating these wastewaters, probably because this is sufficient to comply with their current categorical pretreatment standards. It is well proven, however, that additional reduction in lead concentrations are achievable using sulfide polishing techniques. Sulfide polishing systems for metals treatment of wastewater are widely available and simple to operate (i.e., see Permutit Sulfex™ systems and supporting EPA studies on the effluent guideline program). The comments of the RSR Corporation (Docket 00162) and the Lead Industry Association (Docket 00101) also point out that the .04 PPM standard is not achievable for wastewaters. Although RSR argues to set the BDAT standard at 5.0 PPM (the characteristic level) their own data shows that a BDAT standard of 0.28 PPM is achievable since this is what they are already complying with under the secondary lead Clean Water Act Effluent Guidelines. The Lead Industry Association supported a wastewater treatment standard below the characteristic level at 0.50 mg/l (see Docket No. 00101, page 6) as did the Chemical Manufacturing Association (see Docket No. 00187, page 109). The HWTC would endorse using the categorical pretreatment lead standard as BDAT for wastewater as opposed to setting BDAT at the characteristic level, as we do concur that the 0.04 ppm standard for wastewaters is difficult to achieve. The 0.42 ppm limit suggested by GM (Docket No. 00143, page 5) is appropriate, considering that it is a categorical standard, and wastewater data submitted to the LD12 docket supports its achievability.

COMMENT NUMBER: 9-B-6

DOCKET NUMBER: LD12-L0034

COMMENTER: HWTC

ISSUE: Lead Wastes

SUBISSUE: Wastewater treatment data

RESPONSE:

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble Section 3C.

NT

Comment Number: 9-B-7
Docket Number: LD12-00027.
Commenter: Tischler/ Kocurek
Issue: Lead Wastes
Subissue: Wastewaters—Treatment Data
Comment:

This letter transmits treatability data for D008 wastewaters and nonwastewaters, pursuant to the Environmental Protection Agency's (EPA) request for additional data on lead-containing wastes in the preamble to the proposed regulations (section III. A 5. e).

COMMENT NUMBER: 9-B-7

DOCKET NUMBER: LD12-00027

COMMENTER: TISCHLER-KOCUREK

ISSUE: Lead Wastes

SUBISSUE: Wastewater and nonwastewater treatment data

RESPONSE:

The data submitted by the commenter represent treated wastewaters (precipitation with high magnesium lime and filtration) and untreated nonwastewaters that are "conditioned" with excess lime. The waste is in the "Wastewater treatment sludge" category.

This commenter submitted 15 data points for lead in wastewaters. Influent concentrations ranged from 50 to 276 mg/l. Effluent concentrations ranged from 0.17 to 0.42 mg/l. The calculated variability factor is 1.76. The Agency calculated a treatment standard from these data of 0.51 ppm. The performance of the treatment system clearly shows that a treated lead concentration below the characteristic level is achievable.

The Agency is promulgating a treatment standard at the characteristic level for D008 wastewaters in order not to disrupt the UIC and NPDES programs.

The nonwastewater data submitted by the commenter contain 10 data points. The 18-hour EP total lead ranged from 15,000 to 25,000 mg/kg. Effluent concentrations ranged from 1.0 to 2.2 ppm. QA/QC data were provided. The calculated variability factor and treatment standard are 1.8 and 2.9, respectively, indicating excellent treatment.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full

COMMENT NUMBER: 9-B-7 (continued)
DOCKET NUMBER: LD12-00027
COMMENTER: TISCHLER-KOCUREK
ISSUE: Lead Wastes
SUBISSUE: Wastewater and nonwastewater treatment data
RESPONSE:

measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes, the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

VT

Comment Number: 9-B-8
Docket Number: LD12-00042
Commenter: American Foundrymen's Society
Issue: Lead Wastes
Subissue: Wastewaters - Treatment Data
Comment:

On behalf of its membership which includes ferrous foundries, nonferrous foundries, ingot manufacturers and other suppliers to the foundry industry located throughout the United States, the American Foundrymen's Society provides the following data and preliminary comment on the subject proposal. As requested by the Agency, two copies of this submission are enclosed.

COMMENT NUMBER: 9-B-8
DOCKET NUMBER: LD12-00042
COMMENTER: AFS
ISSUE: Lead Wastes
SUBISSUE: Nonwastewater treatment data
RESPONSE:

The commenter submitted data from an EPA publication on foundry wastes. These data represented a percentage of lead extracted from raw wastes by EP and raw field EP data on nonwastewater lead ranging from 0.2 ppm to 25.5 ppm. These data clearly show the diversity of D008 nonwastewaters. No treated concentrations or QA/QC data were included.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

NT

Comment Number: 9-B-9
Docket Number: L012-00065
Commenter: Andrews & Kurth
Issue: Lead Wastes
Subissue: Wastewaters - Treatment data
Comment:

On behalf of the Secondary Lead Smelters Association, Inc. ("SLSA"), we hereby submit data on the treatment of lead-bearing waste pursuant to the Agency's request for such data in its November 22, 1989 Federal Register notice of proposed land disposal restrictions. 54 Fed. Reg. 48372 (1989). We are submitting the original and two copies of the data in a timely fashion, and the data should, therefore, be incorporated as part of the administrative record.

9-B-9

PLANT A DATA

Ratio of Portland Cement to Slag (Furnace Residues)	TCLP mg/l Pb in Extract
1:5	0.5
1:5	0.3
1:5	0.3
1:10	0.3
1:10	0.1
1:10	0.1
1:15	1.0
1:15	0.2
1:15	0.3
1:2	0.5
1:2	0.8
1:5	0.8
1:6	0.3
1:6	2.4
1:6	0.2
1:8	0.2
1:8	0.6
1:8	0.2
1:10	0.3
1:10	0.3
1:10	1.4

V_F = 4.22
Pb, Maximum, C_{99} = 2.4713 mg/l
Pb Mean = 0.5286 mg/l

9-B-9

PLANT B DATA

Ratio of Portland Cement to Slag (Furnace Residues)	Other Chemical Additions	TCLP mg/l Pb in Extract
1:5	2 - 5% Polymers & Silicates	1.65
		1.25
		2.40
		1.23
		2.69
"	"	2.24
		0.48
		1.35
		2.45
		2.75
"	"	0.85
		0.47
		0.78
		2.03
		0.77
"	"	0.66
		2.06
		2.12
		1.59
		2.66
"	"	0.77
		1.86
		2.95
		1.96
		2.06
"	"	0.32
		2.45
		0.40
		0.46
		0.40
"	"	0.53
		0.27
		1.29
		0.34
		0.28
"	"	0.28
		0.25
		0.29
		0.25
		0.37

9-B-9

Ratio of Portland Cement to Slag (Furnace Residues)	Other Chemical Additions	TCLP mg/l Pb in Extract
1:5	2 - 5% Polymers & Silicates	0.33
		0.28
		0.32
		0.31
		0.35
"	"	0.22
		0.25
		0.28
		0.32
		0.20
"	"	0.33
		0.30
		0.34
		0.37
		0.35
"	"	0.35
		0.35
		0.35
		0.59
		0.32
"	"	0.35
		0.34
		0.80
		0.71
		0.35
"	"	0.46
		0.38
		4.89
		0.43
		0.35
"	"	0.30
		0.33
		0.24
		0.27
		0.34
"	"	0.28
		0.71
		1.10
		0.32
		0.30
"	"	1.51
		0.30
		8.50

9-B-9 65

Ratio of Portland Cement to Slag (Furnace Residues)	Other Chemical Additions	TCLP mg/l Pb in Extract
4:10	10% Silicates	0.45
		1.22
		0.77
4:10	5% Silicates	0.84
		1.19

V_F = 4.82
Pb, Maximum, C_{99} = 4.6436 mg/l
Pb Mean = 0.9636 mg/l

COMMENT NUMBER: 9-B-9

DOCKET NUMBER: LD12-00065

COMMENTER: ANDREWS AND KURTH

ISSUE: Lead Wastes

SUBISSUE: Nonwastewater treatment data

RESPONSE:

The Agency appreciates the commenter's submission of data. In considering data for use in setting treatment standards, the Agency generally requires corresponding influent and effluent concentrations of the particular waste to be treated and proper QA/QC data.

EPA has received no corresponding QA/QC data with this data submittal. The Agency received 110 data points on treatment of slag from this commenter. The data from Plant A ranged from 0.5 to 2.4 ppm and the wastes were treated with varying ratios of Portland cement (from 1:2 to 1:15). The Plant B data include two groups. One group of wastes was treated with a 1:5 ratio of Portland cement and 2 to 5 percent polymer silicates. These data ranged from 0.53 to 8.05 ppm. The second group used a 4:10 ratio of Portland cement and a 10 percent or more silicate concentration. Treated values ranged from 0.77 to 1.22 ppm. If the Agency were to calculate a treatment standard based on these data, the standard would be 2.5 ppm for the Plant A data and 4.3 ppm for the Plant B data. The treatment standard for the high silicate binder would be 5.0 ppm. The Agency believes, therefore, that this commenter's waste can be adequately treated to the characteristic level.

Comment Number: 9-B-10
Docket Number: LD12-0001.17.A
Commenter: EXIDE
Issue: Lead Wastes
Subissue: Wastewaters - Treatment Data
Comment:

DATA FROM ANALYSIS OF K069 CALCIUM SULFATE SLUDGE
GENERATED AT EXIDE/GENERAL BATTERY CORPORATION'S FACILITY
IN READING, PENNSYLVANIA

COMMENT NUMBER: 9-B-10
DOCKET NUMBER: LD12-00117
COMMENTER: EXIDE
ISSUE: Lead Wastes
SUBISSUE: Nonwastewater treatment data
RESPONSE:

The Agency received approximately 500 pages of data on lead-containing sludge from the commenter. The data ranged from 0.04 mg/l to 0.4 mg/l. No treated concentrations of lead were submitted, and no QA/QC data were available.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

L-19

Comment Number: 9-B-41

Docket Number: LD12- L0019.

Commenter: Fox, Weinberg & Bennett

Issue: Lead Wastes

Subissue: Wastewaters - Treatment data

Comment:

Based on a January 26, 1990, meeting with Larry Rosengrant and Monica Chatmon-McEaddy in the Office of Solid Waste's Waste Management Division, the enclosed materials respond to their request for a supplemental data submission for the above-referenced rulemaking. Would you please place the attached letter and accompanying exhibits in the docket for the above-referenced rulemaking.

COMMENT NUMBER: 9-B-11

DOCKET NUMBER: LD12-L0019

COMMENTER: FOX, WEINBERG, & BENNETT

ISSUE: Lead Wastes

SUBISSUE: Wastewater treatment data

RESPONSE:

The Agency thanks the commenter for submitting data on lead treatment for wastewaters. The Agency has evaluated the data. These data represent wastewater from Effluent Guidelines from the battery and secondary lead smelting industry. The effluent concentration of lead ranges from 0.01 to 0.85 ppm. The treatment system for the wastewater is lime precipitation, settling, and filtration. The commenter submitted 119 data points. The commenter did not provide corresponding influent and effluent data. The commenter did provide adequate QA/QC data and operating data for the treatment system. Because of the lack of corresponding influent and effluent data, the Agency may be hesitant to use the data to develop BDAT standards if other data were not available. Using the data, the Agency has calculated a treatment standard of 0.6 ppm for lead in D008 wastewaters.

These data clearly show that the performance of the treatment system can achieve levels below the characteristic for D008 wastewaters. The Agency is promulgating a treatment standard at the characteristic level for D008 wastewaters in order not to disrupt the UIC and Effluent Guidelines programs.

Comment Number: 9-B-42
Docket Number: LD12-L0041
Commenter: Fox, Weinberg, + Bennett
Issue: Lead Wastes
Subissue: Wastewaters - Treatment Data
Comment:

On behalf of our client, the Battery Council International ("BCI"), we are submitting the attached material and data to supplement earlier filings made in connection with the above referenced rulemaking.[1/] The attached materials

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[1/] These data are being submitted as a result of a January 26, 1990 meeting between EPA and BCI, and are to supplement BCI's December 22, 1989, February 8, 1990 and February 12, 1990 data submissions.

COMMENT NUMBER: 9-B-12
DOCKET NUMBER: LD12-L0041
COMMENTER: FOX, WEINBERG, & BENNETT
ISSUE: Lead Wastes
SUBISSUE: Wastewater treatment data
RESPONSE:

The Agency thanks the commenter for submitting data on lead treatment for wastewaters. The Agency has evaluated the data. These data represent wastewater from Effluent Guidelines from the battery and secondary lead smelting industry. The effluent concentration of lead ranges from 0.01 to 0.85 ppm. The treatment system for the wastewater is lime precipitation, settling, and filtration. The commenter submitted 119 data points. The commenter did not provide corresponding influent and effluent data. The commenter did provide adequate QA/QC data and operating data for the treatment system. Because of the lack of corresponding influent and effluent data, the Agency may be hesitant to use the data to develop BDAT standards if other data were not available. Using the data, the Agency has calculated a treatment standard of 0.6 ppm for lead in D008 wastewaters.

These data clearly show that the performance of the treatment system can achieve levels below the characteristic for D008 wastewaters. The Agency is promulgating a treatment standard at the characteristic level for D008 wastewaters in order not to disrupt the UIC and Effluent Guidelines programs.

Comment Number: 9-B-13
Docket Number: LD12-00046
Commenter: AFS
Issue: WW Treatment Data
Subissue: Lead
Comment:

The following is provided on behalf of a nonferrous foundry in the United States. These comments and data are based on the foundry's extensive experience with treating its waste materials.

In the proposed rule, EPA has solicited for comments and data on various treatment technologies associated with land ban materials. This facility is a brass foundry requiring the disposal of spent molding sand. Since lead is a constituent of brass, the waste sand is EP-Toxic for lead.

A treatment process has been developed for this facility to treat the foundry sand with a 10% iron dust addition to reduce EP Toxicity leach concentrations to levels below 5.0 ppm. This treatment process, however, does not consistently meet a 0.51 ppm BDAT Treatment Standard for lead. From the proposed rules for third-third BDAT treatment limit standards, no mention is made of the previously used 80% Student-T statistical method for EP Toxicity waste determination. The elimination of the statistical determination method to define compliance limits reduces the required target treatment standard to an even lower limit for the treatment facility.

It is appropriate at this time to discuss why the iron treatment technology is proper for D008 waste foundry sand. EPA insists that it is appropriate to lower the treatment limit standard for lead to reduce the threat to human health and the environment. They should, however, look at the overall impact on the environment rather than only treatment standards. In other words, EPA should look at the total potential impact of a particular waste on the environment once it has been land disposed rather than the waste's leaching potential prior to landfilling.

COMMENT NUMBER: 9-B-13

DOCKET NUMBER: LD12-L0046

COMMENTER: AFS

ISSUE: Lead Wastes

SUBISSUE: Nonwastewater treatment data

RESPONSE:

The Agency received approximately 700 pages of data on lead-containing nonwastewaters from the commenter. The data ranged from <0.06 to [illegible].0 mg/l. EPA could not determine whether the commenter submitted treated or untreated concentrations of lead, and no QA/QC data were available.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-B-14
Docket Number: LD12-00094
Commenter: TRICIL
Issue: Lead
Subissue: Wastewater Data
Comment:

Tricil Environmental Services Inc. (TESI) hereby offers its comments on the proposed rules entitled, "Land Disposal Restrictions for Third Scheduled Wastes" published on November 22, 1989 at 54 Fed. Reg. 48372, et seq. Our comments are specifically directed at those portions of the proposed regulation establishing land ban restrictions for characteristic hazardous wastes. The comments contained in this document are directed towards the technical aspects of U.S. EPA's proposal. Under separate cover TESI is also submitting comments concerning its legal objections to U.S. EPA's proposal.

COMMENT NUMBER: 9-B-14

DOCKET NUMBER: LD12-00094

COMMENTER: TRICIL

ISSUE: Lead Wastes

SUBISSUE: Wastewater treatment data

RESPONSE:

The commenter submitted lead wastewater data from three wastewater treatment units treating the waste metal by precipitation with phosphate addition. Influent concentrations ranged from 7,000 to 50,000 ppm. Effluent concentrations ranged from 0.2 to 0.62 ppm. The data show a treatment standard of 0.2 ppm, which is more than an order of magnitude lower than the characteristic level. Because of the initial concentration of lead and concentration of other dissolved metal, the Agency believes that these wastes represent the variability associated with the characteristic wastes.

The Agency thanks the commenter for submitting data on lead in wastewaters. EPA has decided to regulate lead wastewaters at the characteristic level so as not to disrupt the UIC and NPDES programs.

Comment Number: 9-C-1
Docket Number: LD12-00094
Commenter: TRICIL ENVIRONMENTAL SERVICES, INC
Issue: LEAD WASTES
Subissue: Wastewaters - Validity of transfer from K062
Comment:

TESI also would like to point out several misconceptions which U.S. EPA raises as fact in its discussion. First, metal precipitation is not strictly a function of metal concentration. As previously discussed, the presence of complexing agents (a common occurrence) routinely makes the treatment of metal wastes to characteristic levels difficult (and in some cases impossible). Secondly, in those instances where metal concentration does play a role, TESI has seen several waste streams with lead concentrations in excess of 7000 ppm. (Note: U.S. EPA bases treatment levels on a high of 7000 ppm but acknowledges that levels below 50,000 ppm are not recoverable). Thus, the premises on which U.S. EPA is basing the D008 BDAT limits are not representative of the range of characteristic D008 wastes.

COMMENT NUMBER: 9-C-1
DOCKET NUMBER: LD12-00094
COMMENTER: TRICIL ENVIRONMENTAL SERVICES, INC.
ISSUE: Lead Wastes
SUBISSUE: Wastewaters--Validity of transfer from K062
RESPONSE:

Based on treatment data for lead wastewaters submitted to the Agency during the public comment period, the lead wastewater treatment standard has been promulgated at the characteristic level of 5.0 mg/l. These new data represent treatment of wastewaters containing up to 300 mg/l lead. The Agency believes the available data for D008 wastewaters show that treatment can be achieved below the characteristic level. The Agency has decided to promulgate at the characteristic level for lead in order not to disrupt the UIC and NPDES programs. For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

The Agency agrees with the commenters that metal precipitation is not strictly a function of metal concentration. In fact, in the Treatment Technology Background Document, the Agency has determined that not only metal concentration but also total dissolved solids, concentration of complexing agents, and concentration of oil and grease affect metal precipitation. Because of these parameters and the diversity of wastes, the Agency has decided to promulgate the treatment standard of 5 mg/l as measured by the EP procedure.

The commenter has not presented data on type and concentration of common complexing agents that show that the wastes treated at the commenter's facility are any more difficult to treat than the D008 wastewaters for which the Agency has treatment data.

Comment Number: 9-C-2
Docket Number: LD12-00143
Commenter: GENERAL MOTORS CORPORATION
Issue: LEAD WASTES
Subissue: Wastewaters - Validity of transfer from K062
Comment:

GM does not agree with transferring K062 treatment technology to D008 wastewaters (page 48438). A review of the "Final Best Demonstrated Available Technology" (BDAT) background document for K062 (August 1, 1988) indicates no presence of lead (at the detection level) in the spent pickle liquor generated by steel finishing operations for iron or steel plants. Additionally, the high proportion of iron in the solution, which serves to co-precipitate lead, would not be present in many sources of D008 wastewater. Battery manufacturers, for example, would have only insignificant quantities of iron in their wastewaters and treatability would not be negatively impacted.

COMMENT NUMBER: 9-C-2

DOCKET NUMBER: LD12-00143

COMMENTER: GENERAL MOTORS CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Wastewaters--Validity of transfer from K062

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes, the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency does agree that concentration of iron aids in the precipitation of lead and therefore would increase the performance of a chemical precipitation process.

Comment Number: 9-C-3✓

Docket Number: LD12-00178

Commenter: BATTERY COUNCIL INTERNATIONAL

Issue: Lead Wastes

Subissue: Wastewaters - validity of transfer from K062

Comment:

2. EPA's Data On The Treatment Levels Achieved On K062 And D008 Mixed Wastes Are Inapposite

EPA claims its data on the treatment of mixed metal wastewaters containing K062 wastes, lead and a variety of other metals ("K062 mixed wastewater") show that the proposed 0.04 mg/l D008 wastewater treatment standard is attainable. However, the K062 mixed wastewaters, where K062 is spent pickle liquor generated by steel finishing operations, are not representative of the wastewater handled by battery manufacturers and secondary smelters. Put simply, EPA's data are inapposite.

First, as reflected in EPA's data, the K062 mixed wastewater influent contained a variety of metals but very little, and in some cases, virtually no lead concentration to begin with. See Proposed Best Demonstrated Available Technology ("BDAT") Background Document For D008 And P And U Lead Wastes, Table 4-9 and the Final Background Document for K062, Tables 4-1 through 4-11. This composition of wastewater is very different from the make-up of the wastewater treated at battery manufacturing and secondary smelting plants where the initial lead concentration is extremely high. The high lead concentration levels and other contaminants in the influent at battery manufacturing plants and secondary smelters has a corresponding effect on the level of reduction that can be attained by the chemical precipitation treatment.8/

8/ The K062 database is comprised of eleven sets of treatment data, each of which, prior to treatment, contained nondetectable lead concentrations. In addition, five of the eleven samples that were mixed with "Non-K062 waste streams" also contained nondetectable lead concentrations. See Final BDAT Background Document for K062 Pages 4-4 through 4-14. These samples then were treated by lime and filtration and achieved a treatment level of 0.04 mg/l. As stated above, not only did these samples contain extremely low lead concentrations, the high iron concentrations contained in the K062 wastes acted as a co-precipitant. Simply put, K062 mixed wastewaters are not as difficult to treat as are wastewaters from battery manufacturing and smelting operations.

Comment Number: 9-C-3 continued
Docket Number: LD12-00178
Commenter: BATTERY COUNCIL INTERNATIONAL
Issue: Lead wastes
Subissue: Wastewaters – validity of transfer from K062
Comment:

Second, K062 mixed wastewater has an extremely high iron concentration which approaches saturation (typically over 50,000 mg/l). Iron acts as a co-precipitant for lead; that is the removal of lead from K062 mixed wastewater by chemical precipitation is enhanced by the presence of iron. Iron is not present to any significant degree in wastewaters from battery manufacturing and secondary smelters. The treatment data submitted to EPA on December 22, 1989, however, do reflect optimized iron dosages for co-precipitation. Thus, chemical precipitation will not be as effective on these wastestreams as it is on those K062 mixed wastewaters which approach saturation with iron. Also, the high iron content of K062 results in large quantities of hazardous sludge for disposal.

Fourth, the Agency indicates on page 48438 of the November 22, 1989 proposed rule (54 Fed. Reg. at 48438) that the lead concentrations in the K062 mixed wastewaters database successfully were reduced when treated by lime and sulfide precipitation. The information contained in the K062 Final Background Document indicate that only lime was used as the precipitating agent. See Pages 4-4 through 4-14. The document states that the Agency has data representing chromium reduction followed by lime precipitation. This is not sulfide precipitation.

K062 wastestreams contain hexavalent chromium, which to be precipitated, must first be reduced to trivalent chromium. This reduction typically occurs through the addition of sulfur dioxide type chemicals. Wastewaters from battery manufacturing and secondary smelting facilities do not contain hexavalent chromium. Theoretically, sulfide precipitation may be more effective than lime precipitation; however, in practice it causes operating difficulties and, therefore, is not more effective. When sulfide precipitation is used, the resulting wastewater treatment sludge typically is characteristic for reactivity. Residual sulfides in the treated wastewater can be more toxic than the contaminants being precipitated.

For these reasons, EPA's data on treatment levels achieved for K062 mixed wastewater is not representative of what can be achieved on D008 wastewater from battery manufacturing and secondary smelting operations. The best, most representative treatment data available are the data collected in connection with the promulgation of the effluent guidelines for battery manufacturers and secondary smelters and the data submitted by BCI on December 22, 1989. As discussed above, these data demonstrate that the proposed treatment standard for D008 wastewater is unattainable.

COMMENT NUMBER: 9-C-3

DOCKET NUMBER: LD12-00178

COMMENTER: BATTERY COUNCIL INTERNATIONAL

ISSUE: Lead Wastes

SUBISSUE: Wastewaters--Validity of transfer from K062

RESPONSE:

For detailed information about the Agency's authority to regulate below the characteristic level. see today's preamble section 3C.

The Agency does agree that concentration of iron aids in the precipitation of lead and therefore would increase the performance of a chemical precipitation process.

Comment Number: 9-C-4
Docket Number: LD12-L0009
Commenter: KOHLER Co.
Issue: Lead Wastes
Subissue: Wastewaters - Validity of transfer from K062
Comment:

THE TREATMENT STANDARD FOR D008 WASTEWATER IS INCONSISTENT WITH OTHER REGULATIONS (Continued)

The agency tested a mixed metal waste stream and achieved a very low lead concentration. This is consistent with our experiences at Kohler Co. Mixed metals waste streams are more easily treated and settled due to coprecipitation and floc entrapment. However, establishing regulations based on experiences with only mixed metal waste streams does not address realistic treatment capabilities associated with single source metal waste streams. Kohler Co. recommends limiting the treatment standards for D008 Wastewaters to the characteristic level of 5.0 mg/L (ppm).

COMMENT NUMBER: 9-C-4

DOCKET NUMBER: LD12-L0009

COMMENTER: KOHLER COMPANY

ISSUE: Lead Wastes

SUBISSUE: Wastewaters--Validity of transfer from K062

RESPONSE:

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

The Agency does agree that concentration of iron aids in the precipitation of lead and therefore would increase the performance of a chemical precipitation process.

~~Comment Number:~~ 9-C-5
~~Docket Number:~~ LD12-L0031
~~Commenter:~~ Thermal KEM/ CyanoKEM
~~Issue:~~ Lead Wastes
~~Subissue:~~ Wastewaters - Validity of transfer from K062
~~Comment:~~

American NuKEM agrees with SLSA that the treatment standard for wastewater treatment residue should not be set at 0.04 mg/L lead. We believe that in conventional physical/ chemical precipitation processes for most wastewaters, treatment to the 0.04 mg/L lead level is unattainable. However, we do not agree with SLSA that the wastewater standard should be set at the characteristic level of 5.0 mg/L lead. We recommend a practical wastewater standard for lead wastes (including D008) should be about 0.42 PPM or about 10 times the proposed standard. This recommendation is based on experience with treating many different types of lead bearing wastewater.

COMMENT NUMBER: 9-C-5

DOCKET NUMBER: LD12-L0031

COMMENTER: ThermalKEM/CyanoKEM

ISSUE: Lead Wastes

SUBISSUE: Wastewaters--Validity of transfer from K062

RESPONSE:

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

Comment Number: 9-C-6

Docket Number: LD12-00089

Commenter: Mill Service, Inc.

Issue: Lead Wastes

Subissue: Wastewaters - Validity of transfer from K062

Comment:

In establishing certain metal waste treatment standards, we believe that EPA has not been consistent in its reasoning as to the basis for the proposed levels. For example, one of the proposed non-wastewater standards for cadmium wastes is 0.14 mg/l based on the transfer of K061 data. EPA believes that K061 represents a particularly difficult waste to stabilize and therefore a reasonable basis by which to set the cadmium waste treatment standard. However, the proposed wastewater standard for cadmium wastes, 0.20 mg/l, has been based on the transfer of data from the Effluent Guidelines Program due to a lack of data on the treatment of cadmium in RCRA D006 wastewaters. Yet K061, F006 and K069 wastewaters have cadmium treatment standards of 1.6 mg/l. Using the same reasoning as in the non-wastewater cadmium standard, a 1.6 mg/l standard would appear to be more appropriate and representative of difficult to treat wastes containing cadmium. Similar discrepancies exist in the treatment standards for chromium non-wastewaters (0.094 mg/l for D007; 5.2 mg/l for K006 and F019) and lead wastewaters (0.040 mg/l for D008; 3.4 mg/l for K002) and potentially others. EPA should maintain a consistent approach in establishing the metal waste treatment standards based on the most difficult waste treatability data available.

COMMENT NUMBER: 9-C-6
DOCKET NUMBER: LD12-00089
COMMENTER: MILL SERVICE INC.
ISSUE: Lead Wastes
SUBISSUE: Wastewaters--Validity of transfer from K062
RESPONSE:

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

The Agency does agree that concentration of iron aids in the precipitation of lead and therefore would increase the performance of a chemical precipitation process.

The Agency transfers the performance of a treatment system from one waste to another waste if the waste shows similar characteristics and the waste is more difficult to treat. The technical justification for technology transfers for this waste can be found in the Final Background Document.

Comment Number: 9-C-7
Docket Number: LD12-0097
Commenter: ARA
Issue: Lead
Subissue: Wastewaters - Validity of Transfer from [illegible] 2
Comment:

Proposed Regulations and the Secondary Aluminum Industry

The Aluminum Recycling Association believes that proposed treatment standards for lead, cadmium, and chromium as they occur in secondary aluminum furnace and incineration-related baghouse dust are technologically unattainable and should not be implemented. Further, current treatment standards for these metals have been and remain adequate from the environmental standpoint. The ARA bases its conclusions on the following criteria:

I. Non-Applicability of Data Transfer Methodology

- In determining new standards for lead, cadmium, and chromium, the EPA applied data it had previously obtained from other industries, and in particular electroplating and steelmaking;
- This procedure is inapplicable to the secondary aluminum industry since its manufacturing processes and generated wastes are significantly different--physically and chemically--from that used to set treatment standards;

Comment Number: 9-C-7(Cont)
Docket Number: LD12-0097
Commenter: ARA
Issue: Lead
Subissue: Wastewaters - Validity of Transfer from K062
Comment:

- ~~Non-~~waste water is a very broad term encompassing very wet sludges, as well as slightly wet solids and should not include or be transferable to dry furnace and incineration-related baghouse dust;

- It is easier to remove impurities from electroplating waste waters since effective techniques inducing precipitation of lead, cadmium, and chromium in solution are available; however, water solution technology is not transferable to dry solids or to the secondary aluminum smelter's waste which, as furnace and incineration-related baghouse dust, is a dry solid particulate;

- Stabilization techniques, as the EPA itself indicates, are not effective for metals in complex matrices. The secondary aluminum industry's furnace and incineration-related baghouse dust is a complex matrix mixture of metal chloride salts and, therefore, not easily separated out of solution by current technologies;

- Incineration or other heat-treating technologies currently in use in steelmaking are not applicable in the treating of secondary aluminum furnace and incineration-related baghouse dust because the dust waste originally emanates from a high temperature smelting process and, therefore, is not readily susceptible to further heat treatment.

COMMENT NUMBER: 9-C-7

DOCKET NUMBER: LD12-00097

COMMENTER: ARA

ISSUE: Lead Wastes

SUBISSUE: Wastewaters--Validity of transfer from K062

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes, the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

The Agency used the best data it had available to set proposed standards for lead. Since the proposed rule, EPA has received data for D008 wastes and these data show that the performance of a treatment system can achieve standards at the characteristic level for D008 wastewaters.

Comment Number: 9-C-8
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Wastewaters - Validity of transfer from K062
Comment:

Second, GNB believes that EPA ought not to rely on data from the steel industry's treatment of wastewaters bearing a mixture of lead and other minerals. Instead, EPA should rely on the significant amount of data that already exists in the development documents used by EPA in establishing effluent limitations guidelines under the Clean Water Act for the secondary and primary lead industries and the battery manufacturing industry. In other words, it would be far more appropriate for EPA to use the voluminous amount of existing data submitted by the lead producers/users and by EPA in the context of proposing effluent guidelines for lead and other nonferrous metals industries than to apply the marginally relevant experience of the K062 situation.

With respect to the appropriate precipitant for the treatment of D008 wastewaters, GNB notes that the BAT technology EPA prescribed for the secondary lead industry employs hydroxide precipitation (with additions of iron or polyelectrolyte coagulant aids as necessary) and sedimentation ("lime and settle"), followed by multimedia filtration as a polishing step.

Comment Number: 9-C-8 continued
Docket Number: LD12-00262
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Wastewaters - Validity of transfer from K062
Comment:

With proper monitoring and control, this technology evidences a documented average and maximum treatment effectiveness for lead of 0.12 mg/l and 0.30 mg/l, respectively. In establishing the BAT standard and its treatment effectiveness, EPA followed extensive research and rulemaking procedures. For EPA now to discount or ignore this data, already compiled by the Agency for the secondary and primary lead industries, would be manifestly wrong.

In the proposed regulations EPA suggests that a method of treatment for lead in wastewaters should be precipitation with carbonate to a proposed concentration of 0.04 mg/l. If EPA determines that a treatment standard is warranted for the land disposal of D008 wastewaters, then GNB believes that the method of treatment for lead in wastewaters should be based on existing BAT standards developed for the secondary and primary lead industries as part of the EPA's effluent limitations guidelines program.

COMMENT NUMBER: 9-C-8

DOCKET NUMBER: LD12-00202

COMMENTER: GNB, INC.

ISSUE: Lead Wastes

SUBISSUE: Wastewaters--Validity of transfer from K062

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

The Agency does agree that concentration of iron aids in the precipitation of lead and therefore would increase the performance of a chemical precipitation process.

Several commenters have stated that the chemical precipitant should not be specified for treatment of D008 wastewaters. EPA has data showing that carbonate and sulfate are not the only effective precipitants for

COMMENT NUMBER: 9-C-8 (continued)

DOCKET NUMBER: LD12-00202

COMMENTER: GNB, INC.

ISSUE: Lead Wastes

SUBISSUE: Wastewaters--Validity of transfer from K062

RESPONSE:

lead in D008 wastewaters and has therefore decided not to promulgate requirements related to use of certain chemical precipitants for treatment of these wastes. Treaters of D008 are free to select any precipitating agent that meets the promulgated treatment standard of 5.0 mg/l for treatment of D008 wastewaters.

Comment Number: 9-C-9
Docket Number: LD12-00274
Commenter: Collier, Shannon & Scott
Issue: Lead
Subissue: Wastewater- Validity of Transfer from K062.
Comment:

EPA has also proposed a specific concentration-based treatment standard of: (i) .04 mg/l for D008 (lead) wastewaters based on transferring data from K062 treated by chemical precipitation; and (ii) of 0.51 mg/l for low lead D008 nonwastewaters from transferring data from F006 wastes that has been stabilized. It is totally inappropriate for EPA to set treatment standards for wastes hazardous because of lead toxicity on the basis of treatment levels achieved by K062 because untreated K062 only contains trace quantities of lead. In fact, 5 of the 11 samples of treated K062 on which EPA relies in setting the treatment level for D008 wastewaters contained non-detectable levels of lead before they were treated by chemical precipitation. See Table 4-9 of the Background Document on D008 wastes. Because individual sources of D008 wastes vary widely, many sources will be unable to meet treatment standards otherwise applicable to K062 or F006.

A far better regulatory approach for EPA to adopt would be to set treatment methods, rather than specific concentration levels as treatment standards for characteristic wastes (or at least those characteristic wastes such as D007 and D008 on which there is insufficient data and for which EPA has proposed concentration limits that are impossible for most wastes to meet). EPA correctly notes that section 3004(m) of RCRA provides EPA with the discretion to promulgate land disposal pretreatment standards expressed either as concentration levels or as treatment methods.[3] In fact, EPA has proposed to establish treatment standards expressed as a treatment process, or alternative treatment processes for more than a hundred wastes in proposed section 40 C.F.R. § 268.42.

We generally support the adoption of these alternative methods of treatment. Industry should be provided with a choice of acceptable treatment processes whenever possible to create competition in the treatment industry and to ensure that a single treatment process or company does not become a monopoly with a market created by government mandate.[4] Consequently, we recommend that EPA adopt stabilization or thermal metals recovery as alternative treatment standards for all D007 and D008 nonwastewaters and chemical precipitation for all D007 and D008 wastewaters. Even if the Agency only adopted these measures as an interim final, it would provide the Agency with

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Comment Number: 9-C-9 (Cont)
Docket Number: LD12-00274
Commenter: Collier, Shannon & Scott
Issue: Lead
Subissue: Wastewater-Validity of Transfer from K062
Comment:

the needed time to adopt valid concentration limits for specific wastes in the future after more data becomes available.

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[3] In the recent decision of Hazardous Waste Treatment Council v. U.S. EPA, 886 F.2d 355, 361 (D.C. Cir. 1989), the Court noted that:

> The statute [RCRA] directs EPA to set treatment standards based upon either "levels or methods" of treatment. Such a mandate makes clear that the choice whether to use "levels" (screening levels) or "methods" (BDAT) lies within the informed discretion of the agency.

[4] Generally, EPA attempts to provide this flexibility and competition by specifying treatment standards expressed as concentrations, thus allowing industry to choose among technologies capable of achieving the desired concentration limits. While this may work for specific waste codes, it does not work for broad categories of characteristic wastes. In this case, EPA should specify an array of treatment methods and allow generators to choose the one most applicable and effective for its own wastes.

COMMENT NUMBER: 9-C-9
DOCKET NUMBER: LD12-00274
COMMENTER: COLLIER, SHANNON, & SCOTT
ISSUE: Lead Wastes
SUBISSUE: Wastewaters--Validity of transfer from K062
RESPONSE:

Based on treatment data for lead wastewaters submitted to the Agency during the public comment period, the lead wastewater treatment standard has been revised to the characteristic level of 5.0 mg/l. The data available to EPA on treatment of D008 wastewaters show that treatment to levels of 0.2 to 0.6 mg/l is achievable. These new data represent treatment of wastewaters containing up to 300 mg/l lead. The Agency has decided to promulgate at the characteristic level for D008 wastewaters in order not to disrupt the UIC and NPDES programs.

The Agency agrees with the commenter that many lead wastes do not contain the concentration of iron found in K062 and that other complexing agents in K062 may interfere with precipitation of lead in wastewaters. Therefore, EPA has decided to promulgate standards for lead at the characteristic level.

The Agency does agree that concentration of iron aids in the precipitation of lead and therefore would increase the performance of a chemical precipitation process.

Additionally, the Agency prefers to set a numercial standard rather than a treatment method for wastes whenever possible. In the case of D008 lead wastes, EPA believes that the data show a numerical standard of 5 mg/l. The Agency recommends that chemical precipitation be used to meet this standard for lead wastewaters and that stabilization/vitrification be used to meet this standard for nonwastewater forms of lead; however, as long as the waste is treated to the characteristic level, any acceptable method of treatment can be used.

Comment Number: 9-C- 10 ✓
Docket Number: LD12-L0019
Commenter: Fox, Weinburg & Bennett
Issue: Lead Wastes
Subissue: Wastewaters - Validity of transfer from K062
Comment:

As we stated in our prior submission on the above referenced proposed rule[1] and at our meeting with you on January 26, 1990, the data used by EPA in proposing the 0.04 mg/l treatment standard for D008 wastewaters are inappropriate and do not accurately represent the level of treatment that can be achieved for D008 wastewaters using chemical precipitation, settling and filtration ("LS&F"). The data EPA used to set the proposed treatment standard are derived from the treatment of K062 wastewaters. K062 wastewaters are fundamentally different in significant and material respects from the D008 wastewaters generated and treated by battery manufacturers and secondary lead smelters. Because of the fundamental differences between K062 and the D008 wastewaters, the level of treatment that can be achieved using the same treatment technology will not be the same regardless of how well the treatment facility is designed or operated. The influent data submitted here (coupled with the effluent data previously submitted) confirms these assertions.

The data in Exhibits A and B show that D008 influent wastewaters at battery manufacturing facilities and secondary lead smelters typically have very high levels of lead and relatively low levels of iron. In contrast, EPA's K062 data show that K062 influent wastewaters typically have very low, and in some case, virtually no levels of lead and extremely high levels of iron, a co-precipitant in LS&F treatment. Thus, even though the same LS&F treatment is applied to battery manufacturer and secondary lead smelting wastewaters and K062 wastewasters, the technology does not yield like results.

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[1] *See* BCI's comments submitted on January 8, 1990 on the land disposal restrictions third-third proposed rule. (Docket No. F-89-LD12-FFFFF.)

Comment Number: 9-C-10 continued
Docket Number: LD12-LD019
Commenter: Fox, Weinburg & Bennett
Issue: Lead Wastes
Subissue: Wastewaters - validity of transfer from K062
Comment:

The effluent data BCI previously submitted shows that well-designed and well-operated battery manufacturing plants and secondary lead smelters using the LS&F technology cannot achieve EPA's proposed treatment level which was based on the LS&F treatment of K062 wastewater. Indeed, data for Plants I and II in BCI's December 22 data submission were taken from plants that EPA used to set the effluent guideline standards for the relevant industrial category and as such, these plants have been recognized by EPA as operating well-designed, well-operated treatment facilities.[1] The treatment data for Plants I and II have been resubmitted here in Exhibit B along with corresponding data showing total suspended solids ("TSS") in the wastewater following treatment. The TSS results show that most of the solids are removed from the wastewater during treatment and indicates that the treatment processes at Plants I and II are, as EPA previously recognized, operating effectively. Yet treatment at these well-designed, well-operated plants does not approach the treatment level proposed by EPA. Fundamentally, the reason is because of the differences in the wastewater being treated.

We hereby request that this letter and the accompanying data be submitted to the record and have forwarded a copy of this material to the docket. If you have any questions concerning these data please contact us. As noted above, we plan to submit the additional data you requested as soon as it can be compiled.

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[1] As indicated in BCI's comments on the third-third proposed rule, the LS&F technology used to establish the BDAT treatment standard is the same technology used to establish the effluent guideline standards for battery manufacturers and secondary lead smelters. BCI believes, as stated in the comments, if EPA sets the BDAT treatment standard below the D008 characteristic level, the effluent guidelines standards more appropriately reflect the levels that can be achieved by well-designed and operated battery manufacturing and secondary lead smelting facilities employing LS&F.

COMMENT NUMBER: 9-C-10
DOCKET NUMBER: LD12-L0019
COMMENTER: FOX, WEINBERG, & BENNETT
ISSUE: Lead Wastes
SUBISSUE: Wastewaters--Validity of transfer from K062
RESPONSE:

Based on treatment data for lead wastewaters submitted to the Agency during the public comment period, the lead wastewater treatment standard has been revised to the characteristic level of 5.0 mg/l. The data available to EPA on treatment of D008 wastewaters show that treatment to levels of 0.2 to 0.6 mg/l is achievable. These new data represent treatment of wastewaters containing up to 300 mg/l lead. The Agency has decided not to promulgate below the characteristic level for D008 wastewaters in order not to disrupt the UIC and NPDES programs.

The Agency does agree that concentration of iron aids in the precipitation of lead and therefore would increase the performance of a chemical precipitation process.

The Agency agrees with the commenter that many lead wastes do not contain the concentration of iron found in K062 and that other complexing agents in K062 may interfere with precipitation of lead in wastewaters. Therefore, EPA has decided to promulgate lead wastewater standards at the characteristic level.

Comment Number: 9-C- -11
Docket Number: L012 L0040
Commenter: Fox, Weinburg, + Bennett
Issue: Lead Wastes
Subissue: Wastewaters - Validity of transfer from K062
Comment:

The data in the record which accompanied your January 30, 1990 letter fully support BCI's assertions. These data show that the typical D008 wastewater treated at a battery manufacturing plant or secondary smelter is very different from the K062 wastewater EPA analyzed in setting the proposed treatment standard. *See*, *e.g.*, BCI's Data Submissions dated February 8, 1990 and February 12, 1990; RSR Corporation's Data Submission (LD 12-00036) (Exhibit 2) dated December 22, 1989; the Data Submission from Tischler/Kocurek (LD 12-00027) dated December 19, 1989; and the comments submitted by Tricil Environmental Services, Inc. (LD 12-00094). The data also show when this typical D008 wastewater is treated using BDAT, the level of treatment does not approach the level proposed by EPA. *See id*. *See also* BCI's January 8, 1990 Comments and BCI's Data Submission dated December 22, 1989.

The data referred to above are the best information available. Indeed, these are the only relevant data available. These data represent the treatment of D008 wastewaters; not the treatment of some other waste stream (K062). The data also represent treatment using the technology that EPA itself has recognized as BDAT. *See* 54 *Fed*. *Reg*. 48440. Finally, the data represent treatment by well-designed and well-operated treatment facilities. For these reasons, these data in general, and BCI's data in particular, should be used to set the treatment standard for D008 wastewaters.

It is significant and important to point out that no data submitted on the treatment of D008 wastewater conflict or are in any way inconsistent with the data submitted by BCI or the conclusions that inescapably must be drawn therefrom. Indeed, all of the data in the record on the treatment of D008 wastewater confirm the validity of BCI's data and support BCI's conclusion that the best technology can achieve is a treatment level that is no lower than, and, in fact, is generally somewhat higher than, the treatment level established in relevant sections of the effluent guidelines. In this regard, we specifically direct your attention to the comments and data submitted by Tischler/Kocurek on behalf of Tyler Pipe Industries of Tyler, Texas (LD 12-00027); the comments submitted by Tricil Environmental Services, Inc. (LD 12-00094), and data submitted by RSR Corporation, all of which support and confirm BCI's data and conclusions.

COMMENT NUMBER:	9-C-11
DOCKET NUMBER:	LD12-L0041
COMMENTER:	FOX, WEINBERG, & BENNETT
ISSUE:	Lead Wastes
SUBISSUE:	Wastewaters--Validity of transfer from K062
RESPONSE:	

Based on treatment data for lead wastewaters submitted to the Agency during the public comment period, the lead wastewater treatment standard is being promulgated at the characteristic level of 5.0 mg/l. The data available to EPA on treatment of D008 wastewaters show that treatment to levels of 0.2 to 0.6 mg/l is achievable. These new data represent treatment of wastewaters containing up to 300 mg/l lead. These data definitely show that the performance of the treatment system can achieve levels lower than the characteristic level. The Agency has made a decision for characteristic wastewaters to promulgate the level at the characteristic level in order not to disrupt the UIC and NPDES programs.

The Agency does agree that concentration of iron aids in the precipitation of lead and therefore would increase the performance of a chemical precipitation process.

The Agency thanks the commenters listed for their submission of data. Based on EPA's criteria of proper corresponding influent and effluent concentrations of lead and QA/QC data, the Agency will evaluate these data sets and will consider their applicability to setting D008 standards for other wastes.

Comment Number: 9-D-1
Docket Number: LD12-00094
Commenter: TRICIL ENVIRONMENTAL SERVICES, INC
Issue: LEAD WASTES
Subissue: Specification of chemical precipitant
Comment:

7. D008 BDAT limit should be raised to characteristic level and should not be technology specific.

As previously stated, TESI believes all characteristic waste BDAT limits should be set at the characteristic level. In its proposal, U.S. EPA has solicited comments on the merits of U.S. EPA specifying a precipitant as the method of treatment. TESI urges U.S. EPA not to specify a precipitant as the BDAT technology. TESI, for example, routinely treats lead with a phosphate, a method not discussed in U.S. EPA's proposal. TESI believes this method of treatment is superior to either a carbonate or sulfate method as the solubility coefficients for these two compounds are 1×10^{-14} and 1×10^{-28}, respectively while the solubility coefficient for phosphates is 1×10^{-43}.

COMMENT NUMBER: 9-D-1
DOCKET NUMBER: LD12-00094
COMMENTER: TRICIL ENVIRONMENTAL SERVICES, INC.
ISSUE: Lead Wastes
SUBISSUE: Specification of chemical precipitant
RESPONSE:

Several commenters have stated that the chemical precipitant should not be specified for treatment of D008 wastewaters. EPA has data showing that carbonate and sulfate are not the only effective precipitants for lead in D008 wastewaters and has therefore decided not to promulgate requirements related to use of certain chemical precipitants for treatment of these wastes. Treaters of D008 are free to select any precipitating agent that meets the promulgated treatment standard of 5.0 mg/l for treatment of D008 wastewaters.

Comment Number: 9-D-2

Docket Number: LD12-00178

Commenter: BATTERY COUNCIL INTERNATIONAL

Issue: Lead Wastes

Subissue: Specification of chemical precipitant

Comment:

The data submitted by BCI also show that the chemical precipitation method EPA claims to achieve the best results (carbonate (soda ash) precipitation, settling and filtration), in fact, achieves no better results than the other chemical precipitation treatment (lime) generally employed by the industry. The data show that a facility using carbonate precipitation, settling and filtration achieved a maximum for any single grab sample of 0.56 mg/l. A like facility using LS&F achieved a calculated maximum of 0.50 mg/l. Compare December 22 Letter Data for Plant IV with Data from Plant II. Importantly, both these performance levels are substantially higher than EPA's proposed treatment standard of 0.04 mg/l.

It is the industry's experience that it may be more difficult to attain proper neutralization and good precipitation when a carbonate (as opposed to lime) is used as the chemical precipitant. Thus, notwithstanding EPA's claims to the contrary, it is the industry's position that chemical precipitation using a carbonate achieves no better results than when lime is used and in fact, is more difficult to control. Accordingly, BCI submits that the Agency should not specify the use of one particular precipitant.

COMMENT NUMBER: 9-D-2

DOCKET NUMBER: LD12-00178

COMMENTER: BATTERY COUNCIL INTERNATIONAL

ISSUE: Lead Wastes

SUBISSUE: Specification of chemical precipitant

RESPONSE:

Several commenters have stated that the chemical precipitant should not be specified for treatment of D008 wastewaters. EPA has data showing that carbonate and sulfate are not the only effective precipitants for lead in D008 wastewaters and has therefore decided not to promulgate requirements related to use of certain chemical precipitants for treatment of these wastes. Treaters of D008 are free to select any precipitating agent that meets the promulgated treatment standard of 5.0 mg/l for treatment of D008 wastewaters.

1

Comment Number: 9-D-3
Docket Number: LD12-00049
Commenter: RMT
Issue: Lead
Subissue: Specific Use of Chemical Precipitant
Comment:

Of the additives that RMT routinely tests for treating foundry wastes, we have not found any that will consistently lower lead and cadmium to below the proposed criteria. Table 3 presents two examples of bench-scale treatment of a variety of additives on foundry wastes. Also, we are not aware of other treatment technologies that can consistently reduce lead and cadmium leaching to below the proposed levels without posing the risk of elevated metals leaching in nonacidic environments. Therefore, we feel that the proposed criteria may result in foundries being unable to safely treat or dispose of their waste. Since iron and brass foundries are important industries that generate a large total volume of EP-Toxic waste, the difficulty of treating or disposing these wastes could cause serious problems.

Comment Number: 9-D-3 continued
Docket Number: LD12-00049
Commenter: RMT
Issue: Lead Wastes
Subissue: Specific Use of Chemical Precipitant
Comment:

TABLE 3

FERROUS FOUNDRY EP-TOXIC WASTE TREATMENT TESTING RESULTS

	EP Toxicity Test Results	
	Cadmium	Lead
FOUNDRY C	mg/L	
Untreated EP-Toxic Waste Composite	8.8	79
+25% Magnesium Hydroxide Slurry	1.7	5.2
+3.9% Phosphoric Acid	4.4	9.2
+7.8% Phosphoric Acid	0.46	0.16
+10% Phosphoric Acid	1.2	0.9
+12.5 Phosphoric Acid	0.71	<0.1
+20% Phosphoric Acid	3.8	0.4
+10% Metallic Iron	6.3	17
+20% Metallic Iron	3.1	0.57
+20% Cement	3.0	12.0
+25% Cement	1.4	1.0
+30% Cement	<0.005	0.3
FOUNDRY D		
Sample #1 Untreated	5.2	88
+10% Metallic Iron	1.9	0.7
+20% Metallic Iron	0.35	0.1
+2.5% Phosphoric Acid	2.3	0.3
+5.0% Phosphoric Acid	1.0	<0.1
+7.5% Phosphoric Acid	0.48	<0.1
+7.5% Magnesium Oxide	0.029	0.3
+15% Magnesium Oxide	0.014	0.9
+22.5% Magnesium Oxide	0.005	1.4
Sample #2 Untreated	9.80	85.1
+7.5% Triple Superphosphate	2.70	0.34
+10% Triple Superphosphate	1.07	0.11
+12.5% Triple Superphosphate	0.77	0.15
+15.0% Triple Superphosphate	0.68	<0.1
+20.0% Triple Superphosphate	0.43	<0.1
+10% Phosphoric Acid	1.2	<0.1
+15% Phosphoric Acid	4.0	<0.1
+5% Magnesium Oxide + 5% TSP	2.3	0.2
Proposed BDAT (TCLP)	0.14	0.51
EP Toxicity Criteria	1.0	5.0

COMMENT NUMBER: 9-D-3

DOCKET NUMBER: LD12-00049

COMMENTER: RMT

ISSUE: Lead Wastes

SUBISSUE: Specification of chemical precipitant

RESPONSE:

Several commenters have stated that the chemical precipitant should not be specified for treatment of D008 wastewaters. EPA has data showing that carbonate and sulfate are not the only effective precipitants for lead in D008 wastewaters and has therefore decided not to promulgate requirements related to use of certain chemical precipitants for treatment of these wastes. Treaters of D008 are free to select any precipitating agent that meets the promulgated treatment standard of 5.0 mg/l for treatment of D008 wastewaters.

Comment Number: 9-D-4
Docket Number: LD12-00162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Specific Use of Chemical Precipitant
Comment:

An illustration may help to define the problem. EPA assumption of using excess lime in the treatment of secondary lead wastewaters to prevent lead from leaching (EPA estimates the BPT will contribute an additional 22,000 KKg (24,000 tons) per year of solid waste over that which is currently being generated by the nonferrous metals manufacturing category. BAT and PSES will increase these waste by approximately 675,000 KKg (770,000 tons) per year beyond BPT levels. These sludges will necessarily contain additional quantities (and concentrations) of toxic metal pollutants.")

During the comment period following the proposal of these water standards, the secondary lead industry advised EPA of its very serious concerns with the rules. Notwithstanding, EPA apparently made several erroneous assumptions with regard to the industry as a whole. For example, EPA assumed the industry would use lagoons for sedimentation and sludge storage; it assumed that the disposal of wastewater sludge would not be regulated under RCRA Subtitle C; and it assumed that the addition of excess lime during treatment would result in the generation of RCRA non-hazardous waste. These assumptions were made by EPA despite their acknowledgment of data to the contrary.

Comment Number: 9-D-4 continued
Docket Number: LD12-00162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Specific Use of Chemical Precipitant
Comment:

EPA has issued inconsistent statements on these matters. On the one hand, EPA has stated that the standards promulgated under the Clean Water Act, as applied to the secondary lead industry, are based on the assumption that wastewater sludges are not subject to RCRA Subtitle C regulation and hence are beyond the scope of the HSWA land disposal restrictions. On the other hand, EPA has noted in the context of this proposal that the effective removal of metals from wastewater generated in the secondary lead industry, and the state of the metals in the resultant sludge, may be inappropriate to minimize the leachability of the metals. Indeed, EPA has stated that further sludge treatment with typical cementitious stabilization technology may increase the leachability of these metals.

Comment Number: 9- D- 4 continued
Docket Number: LD12-00162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Specific use of chemical precipitant
Comment:

An illustration may help to define the problem. EPA assumption of using excess lime in the treatment of secondary lead wastewaters to prevent lead from leaching from the calcium sulfate sludge has the effect of increasing the pH of the water being treated and thus increases the solubility of lead in the wastewater. Accordingly, EPA's solution to sludge treatment is incompatible with EPA's water treatment mechanism. EPA discusses a similar incompatibility problem relating to arsenic in the Preamble to the proposed rule and notes that the Agency has not fully investigated these potential problems. See 54 Fed. Reg. 1098.

In the absence of clear resolution to these matrix and treatment mechanism compatibility problems, we believe that it is not possible to establish numerical BDAT standards for general classes of elements. Since resolution of these problems is not likely in the near term, RSR urges EPA to consider a fourth option in addition to the three options specifically noted in the Preamble. The fourth option contemplates a phased-in approach to the disposal restrictions applicable to characteristic hazardous waste. The phase-in would allow for attainment of data necessary to resolve the matrix and treatment mechanism capability problem discussed above. In some respects, this option is similar to the approach adopted under the "California List" restrictions with regard to the disposal of liquid wastes.

COMMENT NUMBER: 9-D-4

DOCKET NUMBER: LD12-00162

COMMENTER: RSR CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Specification of chemical precipitant

RESPONSE:

The Agency points out to the commenter that the Agency believes that if the wastewater treatment sludge exhibits the characteristic of 5 mg/l as measured by the EP for lead, then the waste must be treated to the characteristic level. EPA believes that if there has been an inconsistent approach toward wastewater sludges in the Clean Water Act, then the commenter should have litigated those rules. That issue is not being addressed in this rule.

Comment Number: 9-D-5
Docket Number: LD12-00269
Commenter: ASARCO
Issue: Lead Wastes
Subissue: Specific use of chemical precipitant
Comment:

Lead

Lime with sulfide polishing is generally regarded as preferable technology. It is doubtful whether the proposed treatment standard of 0.04 mg/l can be achieved.

COMMENT NUMBER: 9-D-5
DOCKET NUMBER: LD12-00269
COMMENTER: ASARCO
ISSUE: Lead Wastes
SUBISSUE: Specification of chemical precipitant
RESPONSE:

Several commenters have stated that the chemical precipitant should not be specified for treatment of D008 wastewaters. EPA has data showing that carbonate and sulfate are not the only effective precipitants for lead in D008 wastewaters and has therefore decided not to promulgate requirements related to use of certain chemical precipitants for treatment of these wastes. Treaters of D008 are free to select any precipitating agent that meets the promulgated treatment standard of 5.0 mg/l for treatment of D008 wastewaters.

For detailed information about the Agency's authority to regulate below the characteristic level, see today's preamble section 3C.

Comment Number: 9-D-6

Docket Number: LD12-00089

Commenter: Mill Service, Inc.

Issue: Lead Wastes

Subissue: Specific Use of Chemical Precipitant

Comment:

Reagents - In several instances, EPA has requested comment on whether it should require the use of specific reagents as part of the treatment standard. From the discussions in Section III.A of the proposed rule, we believe that EPA has determined that it is in the best interest of all parties to establish concentration-based treatment standards based on the best demonstrated available technology wherever possible and then to allow the regulated community to choose the treatment technology they wish to implement to achieve the standards. Specification of the reagents to be used in a particular treatment standard is a departure from that practice and counter to the reasoning behind it.

COMMENT NUMBER: 9-D-6
DOCKET NUMBER: LD12-00089
COMMENTER: ASARCO
ISSUE: Lead Wastes
SUBISSUE: Specification of chemical precipitant
RESPONSE:

Several commenters have stated that the chemical precipitant should not be specified for treatment of D008 wastewaters. EPA has data showing that carbonate and sulfate are not the only effective precipitants for lead in D008 wastewaters and has therefore decided not to promulgate requirements related to use of certain chemical precipitants for treatment of these wastes. Treaters of D008 are free to select any precipitating agent that meets the promulgated treatment standard of 5.0 mg/l for treatment of D008 wastewaters.

Comment Number: 9-E-1

Docket Number: LD12-00136

Commenter: CIBA-GEIGY

Issue: Lead wastes

Subissue: Treatment Data for non-wastewaters

Comment:

However, not all D008 high lead wastes are amenable to recovery. For example, one of CIBA-GEIGY's facilities produces glass enamels. In glass enamel manufacturing, the glass frit and pigment raw materials are oxides of lead, cadmium, and chromium, as well as various other metals depending on the specific colors required. Equipment and container washing during the manufacturing process produces wastewater treatment sludge. Work area ventilation produces a mixed product dust waste. Off-specification and obsolete product wastes are also RCRA hazardous wastes when disposed. Most of these wastes contain more than 2.5 percent lead.

Testing has shown that these wastes can be effectively stabilized prior to disposal in order to reduce EP toxicity values to acceptable levels. We have enclosed test information showing the results from stabilization trials.

Tests have been performed to evaluate two treatment technologies: stabilization and vitrification. Both technologies use high temperatures and additives. The stabilization procedure requires mixing the waste with clays, flint and calcium chloride. This mixture is then fired at 1950° F to produce a ceramic material. The fired material has been tested using the EP Toxicity test and the results are presented in Table 1. This stabilization method appears to yield treated material that meets the proposed BDAT treatment standards for low lead wastes (0.51 mg/l).

The vitrification method adds borax (a fluxing agent) to the waste stream prior to a high temperature melt at 2300° F. All of the high temperature melts, some with lead oxide concentrations of up to 75 percent and no added borax, exhibited a single, homogeneous, molten (glass) phase. The leachability of the metals from the vitrified material is greater than that of the stabilized material, as shown in Table 2. In most tests the extractable lead levels are above the proposed BDAT treatment standard for low lead wastes (0.51 mg/l).

The thermal recovery of lead was not a possibility in any of the melts. The thermal recovery of lead appears to be strongly dependent upon having elemental or metallic lead in the original waste. EPA must allow for stabilization of high lead D008 wastes since not all high lead wastes, especially lead oxides, are amenable to thermal recovery.

Comment Number: 9-E-1 continued

Docket Number: LD12-00136

Commenter: CIBA-GEIGY

Issue: Lead Wastes

Subissue: Treatment Data for non-wastewaters

Comment:

CIBA–GEIGY

Environmental Protection Department
CIBA-GEIGY Corporation
Ardsley, New York 10502-2699
Telephone 914 478 3131

TABLE 1.
RESULTS OF EP TOXICITY TESTS ON STABILIZED HIGH LEAD D008 WASTES

		EP RESULTS (in mg/l)							
TEST	FIRING METHOD	Pb	Cd	Cr	Ba	Hg	Ag	As	Se
1A	1	<0.2	0.13	<0.05	<0.1	<0.0004	<0.02	<0.002	<0.0002
1B	1	0.4	0.12	<0.05	<0.1	<0.0004	<0.02	<0.002	<0.0002
2A	2	<0.2	0.34	<0.05	0.3	<0.0004	<0.02	<0.002	<0.0002
2B	2	<0.2	0.03	<0.05	<0.1	<0.0004	<0.02	<0.002	<0.0002
3A	3	<0.2	<0.02	<0.05	<0.1	<0.0004	<0.02	<0.002	<0.0002
3B	3	<0.2	<0.02	<0.05	<0.1	<0.0004	<0.02	<0.002	<0.0002
4A	4	<0.2	<0.02	<0.05	<0.1	<0.0004	<0.02	<0.002	<0.0002
4B	4	<0.2	<0.02	<0.05	<0.1	<0.0004	<0.02	<0.002	<0.0002

FIRING METHOD	MAX TEMP (° F)	PREHEAT (1) HOURS	HOLD TIME (HRS)
1	1700	6.0	0
2	1700	4.5	2
3	1850	6.0	0
4	1850	4.5	2

(1) Preheat is the period of time required to heat up from ambient to maximum temp. Hold is the time the maximum temp. is maintained.

CONSTITUENTS IN RAW WASTE

Lead Oxide	25.6
Silicon Dioxide	16.9
Aluminum Oxide	10.8
Titanium Dioxide	7.3
Zirconium Dioxide	6.6
Chromium Oxides	6.5
Iron Oxide	5.9
Sum of Cobalt, Nickel, Zinc & Tin Oxides	6.5
Cadmium Compounds	0.5
Barium Compounds	0.5
Silver Compounds	Trace
Selenium Compounds	Trace
Misc. salts and metal oxides	23.0

(Arsenic & Mercury present only as raw material impurities)

Comment Number: 9-E-1 continued
Docket Number: LD12-00136
Commenter: CIBA-GEIGY
Issue: Lead wastes
Subissue: Treatment Data for non wastewaters
Comment:

Environmental Protection Department
CIBA-GEIGY Corporation
Ardsley, New York 10502-2699
Telephone 914 478 3131

CIBA–GEIGY

TABLE 2.

RESULTS OF EP TOXICITY TESTS ON VITRIFIED HIGH LEAD D008 WASTES

EP RESULTS (in mg/l)

		WASTE CONSTITUENTS (WT. %)				EP RESULTS (MG/L)			
TEST	BORAX (WT %)	Pb Oxide	Ba Cmpds	Cd Oxide	Cr Oxide	Pb	Ba	Cd	Cr
A	15	21	0.4	0.85	7.6	0.2	2.0	0.15	<0.05
B	15	21	0.4	0.85	7.6	2.8	0.3	0.17	<0.05
C	15	23	0.4	0.8	5.1	3.2	0.4	0.19	<0.05
D	10	22	0.4	0.9	8.1	2.3	0.3	0.16	<0.05
E	7	21	0.4	0.85	7.6	10.0	0.8	0.48	<0.05
F	0	25	0.6	1.0	9.0	13.0	1.9	1.3	<0.05
G	0	25	0.5	1.0	9.0	11.0	1.7	1.0	<0.05
H	0	75	0.3	0.5	4.5	40.0	0.7	0.3	<0.05
I	0	25	0.3	51.0	4.5	2.4	0.5	29.0	<0.05
J	0	21	0.4	0.85	7.6	4.7	0.8	0.21	<0.05
K	0	13	0.6	0.5	9.5	2.9	0.6	0.23	<0.05

COMMENT NUMBER: 9-E-1
DOCKET NUMBER: LD12-00136
COMMENTER: CIBA-GEIGY
ISSUE: Lead Wastes
SUBISSUE: Treatment data for nonwastewaters
RESPONSE:

The Agency appreciates the commenter's submission of data. In considering data for use in setting treatment standards, the Agency generally requires corresponding influent and effluent concentrations of the particular waste to be treated and proper QA/QC data. EPA has received no corresponding QA/QC data with this data submittal. If EPA were to calculate a treatment standard from the data submitted, the standard would be 0.89 ppm.

The data presented by this commenter show stabilization at 1,850° C of eight data points of a waste containing 25.6 percent lead oxide to between 0.2 and 0.4 ppm.

The Agency believes the data presented by this commenter show treatment to 0.89 ppm lead, with a variability factor of 2.95. Additionally, either vitrification or stabilization is an appropriate technology as long as the treated waste meets the characteristic level. EPA believes that this waste is a difficult-to-treat lead waste because it is contained in a glass matrix.

EPA also agrees with the commenter that concentration of lead in a waste is not by itself a measure of recyclability.

Comment Number: 9-E-2
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead wastes
Subissue: Treatment Data for non-wastewaters
Comment:

b. Existing Treatment Data for Lead Recycling Industry

On December 22, 1989, the SLSA submitted data to EPA regarding the treatment of blast slag. This data confirmed that, based on stabilization, the more appropriate treatment standard for D008 waste is the characteristic level. This data set includes over 100 samples of "treated" blast slag. Specifically, the results of the statistical analysis of these data indicate a treatment range from 2.47 mg/l of lead to 4.64 mg/l of lead. These data clearly indicate that the 0.51 mg/l BDAT transferred from the F006 and K046 waste codes is inappropriate for D008 wastes generated by the lead recycling industry.

In the preamble to the November 22, 1989 Federal Register notice for the proposed land disposal restrictions, EPA acknowledged that it did not have any treatment data for the lead recycling industry. 54 Fed. Reg. at 48437 and 48439. Now that this data is available, the treatment standard for D008 waste should be based on the lead recycling industry data rather than data from other waste codes in other industries. Accordingly, the BDAT should be set at the characteristic level of 5.0 mg/l.

Table I
F006 Data Base for Calculating the BDAT of 0.51 mg/l of Lead

Source	Assay Pb Conc. mg/kg (ppm)	TCLP Pb Conc. mg/l	Stabilized Waste TCLP used for BDAT Calculation mg/l
1) Unknown	35.5	0.26	
2) Autopart	409.0	10.70	0.389
3) Aircraft	25.7	0.26	
4) Aerospace	11.4	6.86	
5) Zinc Plating	88.5	0.45	
6) Unknown	52.0	0.45	
7) Small Engine Manuf.	113.0	3.37	0.389
8) Circuit Board Manuf.	156.0	1.00	0.410
9) Unknown	169.0	4.22	0.400
10) Unknown	24,500.0	50.20	0.291[2]

Characteristic Conc. for Pb = 5.0 mg/l

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[2] An additional TCLP data point for this sample is 2.677 mg/l. It was, however, deleted arbitrarily by EPA in the BDAT calculation.

COMMENT NUMBER: 9-E-2
DOCKET NUMBER: LD12-00161
COMMENTER: ANDREWS AND KURTH
ISSUE: Lead Wastes
SUBISSUE: Treatment data for nonwastewaters
RESPONSE:

The Agency appreciates the commenter's submission of data. In considering data for use in setting treatment standards, the Agency requires corresponding influent and effluent concentrations of the particular waste to be treated and proper QA/QC data.

EPA has received no corresponding QA/QC data with this data submittal. The Agency received 110 data points on treatment of slag from this commenter. The data from Plant A ranged from 0.5 to 2.4 ppm, and the wastes were treated with varying ratios of Portland cement (from 1:2 to 1:15). The Plant B data include two groups. One group of wastes was treated with 1:5 ratio of Portland cement and 2 to 5 percent polymer silicates. This data ranged from 0.53 to 8.05 ppm. The second group used a 4:10 ratio of Portland cement and a 10 percent or more silicate concentration. Treated values ranged from 0.77 to 1.22 ppm. If the Agency were to calculate a treatment standard based on these data, the standard would be 2.5 ppm for the Plant A data and 4.82 ppm for the Plant B data. The Agency believes, therefore, that this commenter's waste can be adequately treated to the standard 5.0 ppm and represents the diversity of D008 nonwastewaters.

Comment Number: 9-E-3
Docket Number: LD12-00036
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Treatment Data for Non-Wastewaters
Comment:

Slag Data

There is "demonstrated" and "available" technology that allows the secondary "lead" industry to extract incrementally sufficient lead so that the end residual slag is nonhazardous for RCRA purposes. The incremental metallurgical extractive manufacturing process produces pure and alloy lead metal which competes directly with virgin lead in the market place. See Attachment 4. Appended at Attachment 5 is a summary of the sampling protocol that was used in testing the slag.

COMMENT NUMBER: 9-E-3
DOCKET NUMBER: LD12-00036
COMMENTER: RSR CORPORATION
ISSUE: Lead Wastes
SUBISSUE: Treatment data for nonwastewaters
RESPONSE:

The Agency appreciates the commenter's submission of data on lead slag. In considering data for use in setting treatment standards, the Agency generally requires corresponding influent and effluent concentrations of the particular waste to be treated and proper QA/QC data.

EPA evaluated the 33 data points on electric furnace slag showing treatment from 0.1 to 3.4 mg/l EP. The variability factor calculated for this waste is 5.2, and the treatment standard is 2.1 ppm.

In addition, EPA may study treatability of these slags further as part of efforts to determine standards for inorganic debris.

Comment Number: 9-E-4
Docket Number: LD12-L0031
Commenter: Thermal KEM/ CyanoKEM
Issue: Lead Wastes
Subissue: Treatment data for nonwastewaters
Comment:

The data package submitted by SLSA is deficient with respect to a number of information packages required by EPA in evaluating BDAT. No QA/QC data is provided, and no concentration of metals in the untreated waste is given. No detail is given of the treatment methodology, other than ratios of portland cement binders. It should be noted that in both the F006 and K061 BDAT Background Document, other stabilization agents are used to assure greater pozzoulonic activity, and metals binding. Agents such as fly ash, lime, and sulfide would provide for a higher degree of stabilization and metals treatment than just adding portland cement. Lead is also amphoteric, and no pH data is provided by SLSA to indicate if they optimize the pH of their stabilization.

Even at that, 64 of the 109 data points (or 51% of the data) provided by SLSA indicate compliance with EPA's proposed BDAT standard of .51 PPM lead for D008 non-wastewater. The average for Plant A was only slightly over the proposed standard (.53 vs .51). The average for Plant B was 0.82 PPM excluding two outliers from the 83 data point set. Therefore, with some minor additional optimization, the proposed standard of .51 should be achieved on a routine basis. Even if the data is used to set BDAT, a treatment standard in the range of 2.2 to 3.8 PPM would result, still a level below the characteristic level. The Plant A data would yield a BDAT standard of 2.2, and the Plant B data (excluding the two outliers) would give a BDAT standard of 3.8. This data should not be used to set BDAT, however, because no QA/QC is provided, nor any details given concerning the treatment process to determine if it is well operated.

COMMENT NUMBER: 9-E-4

DOCKET NUMBER: LD12-L0031

COMMENTER: ThermalKEM/CyanoKEM

ISSUE: Lead Wastes

SUBISSUE: Treatment data for nonwastewaters

RESPONSE:

This commenter submitted a response to some of the data the Agency received on lead wastes. The Agency agrees with the commenter that in order to develop treatment standards, the Agency is seeking good QA/QC data, input waste characterization, description of the treatment process to determine whether it is well designed and well operated, and description of factors affecting the process performance. The Agency does not agree totally with the commenter's analysis of the data. The commenter has analyzed the Secondary Lead Smelters Association data and has concluded that the data show treatment levels below the characteristic level. The commenter points out the deficiencies of the data submission. On the whole, the Agency agrees with the commenter that the data are deficient in some areas, although the Agency believes that these data show the stabilization of high-lead waste, i.e., 10 percent. The commenter's data clearly do not come close to trying to stabilize these wastes. The commenter also points out that with some minor optimization, SLSA could meet the proposed standard. The Agency is not aware what is meant by minor optimization that SLSA could use to impale their treatment system since SLSA is using binder-to-waste ratios as high as 15 to 1. Also, the SLSA data show that the highest lead standard clearly leached above the characteristic level.

COMMENT NUMBER: 9-E-4 (continued)

DOCKET NUMBER: LD12-L0031

COMMENTER: ThermalKEM/CyanoKEM

ISSUE: Lead Wastes

SUBISSUE: Treatment data for nonwastewaters

RESPONSE:

With respect to the foundry data, the commenter points out that there exist other stabilizing agents that can stabilize the foundry wastes. The commenter has not provided any data that support this statement.

The commenter also reviewed the glass data and concluded that other stabilizing agents may be able to reduce the leachability of lead in the waste. The Agency points out that the glass data used lime and phosphate as a stabilizing agent. There was a submission of 34 data points, and the Agency calculated a treatment standard at the characteristic level. The type of waste that was stabilized was grinding and polishing dust and wastewater treatment filter press solids. The total concentration of lead was 2.5 percent. Clearly, these data show the commenter did not attempt to stabilize this type of waste.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-E-5
Docket Number: LD12-00036
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Treatment Data for nonwastewaters
Comment:

D. Slag Data

There is "demonstrated" and "available" technology that allows the secondary lead industry to extract incrementally sufficient lead so that the end residual slag is nonhazardous for RCRA purposes. The incremental metallurgical extractive manufacturing process produces pure and alloy lead metal which competes directly with virgin lead in the market place. See Attachment 4. Appended at Attachment 5 is a summary of the sampling protocol that was used in testing the slag.

COMMENT NUMBER: 9-E-5
DOCKET NUMBER: LD12-00036
COMMENTER: RSR CORPORATION
ISSUE: Lead Wastes
SUBISSUE: Treatment data for nonwastewaters
RESPONSE:

The Agency appreciates the commenter's submission of data on lead slag. In considering data for use in setting treatment standards, the Agency requires corresponding influent and effluent concentrations of the particular waste to be treated and proper QA/QC data.

EPA evaluated the 33 data points on electric furnace slag showing treatment from 0.1 to 3.4 mg/l EP. The variability factor calculated for this waste is 5.2, and the treatment standard is 2.1 ppm.

In addition, EPA may study treatability of these slags further as part of efforts to determine standards for inorganic debris.

Comment Number: 9-E-6
Docket Number: LD12-00082
Commenter: Schuylkill Metals Corporation
Issue: Lead Wastes
Subissue: Treatment data for nonwastewaters
Comment:

Attached are Schuylkill Metals Corporations comments on the referenced proposed rules.

COMMENT NUMBER: 9-E-6

DOCKET NUMBER: LD12-00082

COMMENTER: SCHUYLKILL METALS CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Treatment data for nonwastewaters

RESPONSE:

The commenter submitted three data points for untreated lead in nonwastewater slag, ranging from 3.7 to 25.2 ppm EP, with a recovery of 92.2 percent. No treated concentrations of lead in the waste were provided; therefore, the Agency could not calculate a treatment standard.

The Agency appreciates the commenter's submission of data. In considering data for use in setting treatment standards, the Agency requires corresponding influent and effluent concentrations of the particular waste to be treated and proper QA/QC data. EPA cannot use these data because they do not reflect treatment.

EPA will consider these data in its further study of inorganic debris.

Comment Number: 9-E-7 ✓
Docket Number: LD12-00198
Commenter: Department of Energy
Issue: Lead Wastes
Subissue: Treatment data for non wastewaters
Comment:

6.2 Lead Dross Test Results

The lead dross used in development work was obtained from a refining firm, and is an actual sample of the dross generated in the refining process. Development is being conducted on this waste because the INEL has waste lead that must be dispositioned, and refining may be the most viable option.

Testing of the lead dross (see Table 7 for results) has not, using the most conservative results, shown a successful solidification. However, the leach test results of the solidified samples, when compared to the unsolidified samples leach test results, show a significant decrease in the leach rate. Further testing of binder-to-waste ratios should be successful. Four of the samples analyzed showed lead concentrations below the 5.0-mg/L limit established by the EPA. However, duplicate samples analyzed at another laboratory showed lead concentrations greater than the limit. Further testing is required to determine the differences in results from the various laboratories.

6.3 Fly Ash Test Results

The fly ash used was obtained from the Waste Experimental Reduction Facility. The fly ash is off-gas dust collected in the baghouse during incineration operations at the facility. The constituents of concern in the fly ash, from a toxicity standpoint, are cadmium and lead. Testing the fly ash also included solidifying samples that used the 2500 ppm potassium-chromate solution instead of demineralized water. This testing was performed to investigate the possibility of combining these waste streams for treatment, thereby reducing the total waste volume, labor, and burial costs associated with the disposal of these wastes.

9-E-7
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TABLE 7. TEST RESULTS OF SOLIDIFIED LEAD DROSS SAMPLES

Sample Number[b]	Lead Concentration Detected[a] (mg/L)		
	Lab Number 1	Lab Number 2	Lab Number 3
Lead Dross	8,340[c]	33,233[c]	4,600[c]
SC	230	144	1.28
SC1	2.0	27.6	--
SC2	4.5	32.9	--
SC3	813	189	--
SE	174	96	1.04
SE1	174	46.8	--
SE2	93.9	--	--
SE3	294	--	--

a. The toxic limit for lead concentration is 5.0 mg/L.

b. See Table 5 for sample formulation.

c. Unsolidified sample.

Comment Number: 9-E-7 continued
Docket Number: LD12-00198
Commenter: Department of Energy
Issue: Lead Wastes
Subissue: Treatment data for non-wastewaters
Comment:

Testing the fly ash has shown that successful solidification requires 36 g of cement per 50 g of fly ash with 100 mL water as a minimum (see Table 8 for results). Addition of the silicate with the cement had the tendency to reduce the amount of lead that leached from the sample. Silicate alone, however, had no effect on the leach rates of any of the three contaminants. A successful solidification of the fly ash using the ENVIROSTONE binder was not obtained.

In testing the fly ash using potassium-chromate solution instead of water, successful solidification was obtained when 36 g of cement and 12 mL of silicate per 50 g of fly ash with 100 mL of 2500 ppm potassium-chromate solution were used as a minimum. Again, in these samples, the silicate tended to reduce the amount of lead that leached from the sample, but in these samples the silicate was required with the cement for successful solidification. A successful solidification of the fly ash and potassium chromate using the ENVIROSTONE binder was not obtained.

The results of the fly ash testing have shown that the fly ash can be successfully solidified using water and cement, or the potassium-chromate solution with the cement-silicate binders. This will provide a safe, efficient, cost-effective treatment method for long-term disposal of both the fly ash and potassium chromate waste streams.

COMMENT NUMBER: 9-E-7
DOCKET NUMBER: LD12-00198
COMMENTER: DEPARTMENT OF ENERGY
ISSUE: Lead Wastes
SUBISSUE: Treatment data for nonwastewaters
RESPONSE:

The Agency appreciates the commenter's submission of data. In considering data for use in setting treatment standards, the Agency generally requires corresponding influent and effluent concentrations of the particular waste to be treated and proper QA/QC data.

EPA has received no corresponding QA/QC data with this data submittal and cannot determine whether the data shown represent untreated or treated lead dross or fly ash.

The text of this comment describes the influent concentration of lead fly ash as 2,500 ppm lead. This waste is stabilized using various cement binders.

Comment Number: 9-E-8
Docket Number: LD12-00013
Commenter: Vision-Ease
Issue: Lead Wastes
Subissue: Treatment data for nonwastewaters
Comment:

The following comments are being submitted in regard to the proposed LAND DISPOSAL RESTRICTIONS FOR THIRD SCHEDULED WASTES.

COMMENT NUMBER: 9-E-8

DOCKET NUMBER: LD12-00213

COMMENTER: VISION-EASE

ISSUE: Lead Wastes

SUBISSUE: Treatment data for nonwastewaters

RESPONSE:

The commenter submitted 34 data points representing chemical treatment with calcium hydroxide and monosodium phosphate of ground glass particles, wastewater treatment residuals, filter press solids, and polishing solids, generated in the manufacture of eyeglass lenses. This waste has greater than 2.5 percent lead; effluent concentrations range from 0.5 to 12 mg/l. This waste leaches at 5.0 mg/l.

The Agency appreciates the commenter's submission of data. In considering data for use in setting treatment standards, the Agency recognizes the lack of corresponding influent and effluent concentrations of the particular waste to be treated and proper QA/QC data. However, EPA believes that this commenter's waste is a difficult-to-treat D008 waste.

Comment Number: 9-E-9 ✓
Docket Number: LD12-00050
Commenter: HWTC
Issue: Lead Wastes
Subissue: Treatment data for nonwastewaters
Comment:

The Hazardous Waste Treatment Council (HWTC) submits the attached data concerning the treatability of a number of wastes identified in the proposed Third-Third regulation (54 FR 48372, November 22, 1989).

A member company of HWTC performs stabilization of hazardous wastes prior to land disposal of those wastes. An extensive testing program was conducted by this member company to determine suitability of stabilization when applied to a number of wastes containing metals constituents.

COMMENT NUMBER: 9-E-9

DOCKET NUMBER: LD12-00050

COMMENTER: HWTC

ISSUE: Lead Wastes

SUBISSUE: Treatment data for nonwastewaters

RESPONSE:

The commenter submitted 35 data points showing treatment of lead in nonwastewaters. Total lead values ranged from 16 to 49,000 ppm; EP concentrations ranged from 0.5 to 8.7 ppm. No QA/QC data on untreated values were provided. EPA has received no corresponding QA/QC data with this data submittal; therefore, these data have limited value in setting treatment standards. In the data submission, a few of the untreated leachable concentrations were provided. Some of these data clearly show that the waste did not exhibit the characteristic before treatment. The waste with the highest influent total concentration of lead (49000 ppm) clearly leached above the characteristic level even after treatment. These data reiterate the diversity of characteristic wastes and clearly show that the characteristic level cannot be met for all D008 nonwastewaters. For a detailed analysis of these data, see today's Final Rule.

The Agency appreciates the commenter's submission of data. In considering data for use in setting treatment standards, the Agency seeks corresponding influent and effluent concentrations of the particular waste to be treated and proper QA/QC data.

If the Agency were to calculate a treatment standard for these data, the standard would be 14 ppm as measured by the TCLP.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full

COMMENT NUMBER: 9-E-9 (continued)

DOCKET NUMBER: LD12-00050

COMMENTER: HWTC

ISSUE: Lead Wastes

SUBISSUE: Treatment data for nonwastewaters

RESPONSE:

measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-F-1
Docket Number: LD12-00131
Commenter: TISCHLER/KOCUREK
Issue: LEAD WASTES
Subissue: Validity of transfer of stabilization data to D008
Comment:

The Agency has proposed a BDAT standard for low-lead content D008 nonwastewater as 0.51 mg/L, measured in a toxicity characteristic leaching procedure (TCLP) extract. The Agency does not state exactly how it obtained the proposed nonwastewater standard for D008 wastes; we have inferred that it is from the F006 data since the standard is identical to the P and U standards that are based on F006 waste stabilization (pages 7-3 through 7-6, LD12-S1051).

Tyler Pipe does not believe that the F006 wastewater sludges can be considered as representative of the potential range of D008 nonwastewater matrices. For example, four of the five F006 nonwastewater samples that were stabilized and serve as the basis of the proposed limits contained less than 410 milligrams/kilogram of lead (mg/kg) [Table 7-3, LD12-S1061]. Tyler Pipe's wastewater sludge, as documented in the data submittal to the RCRA Docket for this rule, contains from 15,000 to 25,000 mg/kg of lead. Although EPA's F006 data base for stabilization contains one sample with lead concentrations in this range, we do not believe that this single sample is a demonstration that all wastes containing high concentrations of lead can be stabilized to the proposed BDAT standard.

COMMENT NUMBER: 9-F-1
DOCKET NUMBER: LD12-00131
COMMENTER: TISCHLER/KOCUREK
ISSUE: Lead Wastes
SUBISSUE: Validity of transfer of stabilization data to D008
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

EPA used the best data available for lead at the time of proposal. Unfortunately, only one of the five data points from F006 stabilization had greater than 500 ppm lead in the untreated waste. EPA agrees the proposed transfer was not technically valid.

The commenter is correct that the proposed treatment standard for the low lead subcategory was based on the performance of stabilization for F006 wastes.

Comment Number: 9-F-2
Docket Number: LD12-00161, LD12-00161A
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead Wastes
Subissue: Validity of transfer of stabilization data to D008
Comment:

3. Stabilization as BDAT

Relying on treatment data for other waste codes from other industries, EPA has proposed a treatment standard of 0.51 mg/l of lead for nonwastewater forms of D008 that contain less than 2.5% of total lead.

Furthermore, the proposed treatment standard of 0.51 mg/l is not appropriate for D008 waste. This treatment standard was developed by relying on treatment data for other waste codes from other industries. While these data may provide sufficient justification for the applicable treatment standards for these other waste codes and industries, they are not appropriate for establishing a BDAT for D008 wastes generated by the lead recycling industry. A discussion of why the treatment data for these other waste codes is inappropriate for D008 wastes is provided below.

a. Data Base for Stabilization as BDAT

A review of the BDAT background document for F006 wastes clearly indicates that the F006 data base is flawed and that F006 wastes are significantly different than waste generated by the lead recycling industry. The attached Table I (Appendix A) summarizes the limited EPA data base taken from Table D.1 in the F006 background document. With respect to the data base, the Agency compiled 10 original data points that were narrowed to only five points by selective deletion without apparent technical justification.

Comment Number: 9-F-2 continued
Docket Number: LD12-00161, LD12-00161A
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead Wastes
Subissue: Validity of transfer of stabilization data to D008
Comment:

Four of the five selected F006 wastes contained less than 409 mg/kg (ppm) of total lead. Almost all secondary lead smelting slag ranges in lead assay from 1 to 5 percent, and some plant furnace residues can range to more than 10% lead. These assays equate to lead concentrations ranging from 10,000 to 100,000 mg/kg(ppm) -- obviously extremely higher than the four data points, with concentrations below 409 mg/kg, that were selected by the EPA. Moreover, three of the four samples had TCLP concentrations, before stabilization, that did not fail the 5.0 mg/l characteristic level for lead, further demonstrating the unrelated character of these wastes to slag which will likely exhibit the toxicity characteristic by application of the TCLP.

Only one waste sample had a lead content that was similar to D008 wastes from the lead recycling industry. This one sample, from an "unknown" source, had a lead content of 2.45% or 24,500 mg/kg (ppm). The fact that it is from an "unknown" source makes the use of this one data point highly questionable. A TCLP result, after stabilization, used in the BDAT calculation was 0.29 mg/l. However, another corresponding TCLP data point for this unknown waste, which EPA arbitrarily deleted, was 2.677 mg/l of lead.[*/] EPA has, therefore, relied upon only one unknown waste data set that has any remote similarity to the lead content found in wastes from the lead recycling industry; yet, EPA arbitrarily deleted the 2.677 mg/l TCLP concentration. It is not scientifically sound to statistically analyze only five data points, and it is impossible to analyze only one data point to establish a statistically sound BDAT limit.

[*/] As was evident in the effluent guideline rulemaking for the nonferrous metals industry, EPA rejects "elevated" sample results with the bald assertion that the result was collected from a facility that was not performing "optimally". The consequence of such a practice is the promulgation of standards which are not feasible.

Comment Number: 9-F-2 continued
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead Wastes
Subissue: Validity of transfer of stabilization data to D008
Comment:

As with F006 wastes, the BDAT for K046 wastes is inappropriate for lead recycling wastes. The BDAT background document for K046 wastes indicates that only one sample was used to determine BDAT for K046. This one sample only had a lead content of 967 ppm (<0.1%) of lead as compared to slag at 1 to 5% lead. See Table 4 - 1 to the Background Document for K046. The extreme difference in lead concentrations between the K046 waste sample and D008 slag waste, on its face, should exclude K046 performance data as being proper for transfer of technology to D008 wastes.

It is interesting to note that the successful stabilization scheme for K046 required a 1.2 to 1 ratio of cement to waste. This would have the effect of increasing the waste volume by at least 120%. Such a result would be contrary to EPA waste minimization goals and be violative of Congressional intent evidenced in the 1984 Hazardous and Solid Waste Act Amendments.

Furthermore, the data for this one set of results used to establish K046 BDAT is unreliable. In Table 4 - Z to the Background Document for K046, the TCLP result of the untreated waste for this sample was 103 mg/l of lead. It is, however, impossible to achieve 103 mg/l of extracted lead in the TCLP when the total content of the waste is 967 ppm. The TCLP has a built in dilution factor of 20. If the total lead content is 967 ppm, then the absolute maximum TCLP extract could be no higher than 48.35 mg/l, assuming 100% extraction by the TCLP, which never occurs. This fact alone should disqualify the only data point used to establish BDAT for K046.

Comment Number: 9-F-2 continued
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead Wastes
Subissue: Validity of transfer of stabilization data to D008
Comment:

The use of F006 and K046 data is also inappropriate for D008 wastes because the chemical and physical properties of blast slag and other furnace residues from the lead recycling industry have no resemblance to F006 or K046 wastes. For example, the F006 and K046 waste sludges are comprised of finely divided particles which allow for a higher degree of stabilization. On the other hand, blast slag is often as hard as granite rock and is usually in the shape of large blocks weighing over 1,000 pounds. It is very difficult to crush slag to less than 3/8" particle sizes and it is virtually impossible to reduce the slag in size to the fines and colloidal particle sizes of sludges. Similar low results obtained with F006 and K046 waste cannot be expected to be achieved with slag waste.

Comment Number: 9-F-2 continued
Docket Number: LD12-00161, LD12-00161A
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead wastes
Subissue: Validity of transfer of stabilization data to D008
Comment:

APPENDIX A

Table I
F006 Data Base for Calculating the BDAT of 0.51 mg/l of Lead

Source	Assay Pb Conc. mg/kg (ppm)	TCLP Pb Conc. mg/l	Stabilized Waste TCLP used for BDAT Calculation mg/l
1) Unknown	35.5	0.26	
2) Autopart	409.0	10.70	0.389
3) Aircraft	25.7	0.26	
4) Aerospace	11.4	6.86	
5) Zinc Plating	88.5	0.45	
6) Unknown	52.0	0.45	
7) Small Engine Manuf.	113.0	3.37	0.389
8) Circuit Board Manuf.	156.0	1.00	0.410
9) Unknown	169.0	4.22	0.400
10) Unknown	24,500.0	50.20	0.291[1]

Characteristic Conc. for Pb = 5.0 mg/l

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[1] An additional TCLP data point for this sample is 2.677 mg/l. It was, however, deleted arbitrarily by EPA in the BDAT calculation.

COMMENT NUMBER: 9-F-2
DOCKET NUMBER: LD12-00161; LD12-00161A
COMMENTER: ANDREWS & KURTH (SLSA)
ISSUE: Lead Wastes
SUBISSUE: Validity of Transfer of Stabilization data to D008
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The commenter's concerns with the quality of the F006 stabilization data (i.e., that the data base is "flawed") are invalid. The decision not to consider five of the original ten data points was based on the fact that five of the ten data points did not show significant treatment for lead because the untreated waste leachate values for lead were low. The data point deleted by EPA for treatment of the 2.45 percent lead F006 waste was deleted because it represented a lower binder-to-waste ratio than the 0.29 mg/l data point for the same waste. This was not an arbitrary deletion. The data point was deleted because not enough binder was added in that particular stabilization test to stabilize the lead as well. The deletion of data points such as this simply represents EPA's statutory obligation to select "best" treatment (i.e., best binder-

COMMENT NUMBER: 9-F-2 (continued)
DOCKET NUMBER: LD12-00161; LD12-00161A
COMMENTER: ANDREWS & KURTH (SLSA)
ISSUE: Lead Wastes
SUBISSUE: Validity of transfer of stabilization data to D008
RESPONSE:

to-waste ratio) for each waste. However, the Agency has determined that the proposed transfer was not technically sound.

The fact that only one of the five data points had greater than 500 mg/kg lead in the untreated waste is a valid concern. However, these were the best data that the Agency had (in terms of high untreated lead concentrations) at the time of proposal. EPA has since received data on stabilization of many types of D008 nonwastewaters (slags and glass wastes as well as wastewater treatment sludges) that indicate that these wastes can be stabilized to concentrations of approximately 5.0 mg/l. Some of the wastes for which data have been submitted even contained lead at levels greater than 25 percent. Therefore, the Agency believes that the F006 data, as well as data received on stabilization of D008 nonwastewaters, support a treatment standard of 5.0 mg/l (EP leachate) for D008 nonwastewaters.

The EP extraction of the untreated waste was provided to compare the EP results of the untreated waste with the EP results of the treated waste. From this comparison, it was determined that substantial treatment did occur since the EP extract value was decreased from 103 mg/l to $\leq$ 0.01 mg/l.

The commenter correctly states that EP has a built-in dilution factor of 20. Therefore, the Agency believes that the maximum the EP of the untreated waste could attain would be 48.35 mg/l. In this statement the commenter did not take into account that the untreated waste was a slurry

COMMENT NUMBER: 9-F-2 (continued)
DOCKET NUMBER: LD12-00161; LD12-00161A
COMMENTER: ANDREWS & KURTH (SLSA)
ISSUE: Lead Wastes
SUBISSUE: Validity of transfer of stabilization data to D008
RESPONSE:

containing ≤ 5 percent solids and not a sample containing 100 percent solids. The EP extraction procedure does have a 20:1 dilution of the solid material extracted. However, the original sample is filtered prior to solids extraction, and the filtrate is added back to the liquid extracted from the solids to form the EP extract for the total sample. Therefore, for this waste, which contains approximately 90 percent liquid, it is entirely possible that a substantial portion of the lead was contained in the filtrate. Therefore, a simple division of 20 cannot be done to estimate the maximum possible EP value. The data are reliable and can be used to establish a treatment standard for K046.

The Agency has determined that slag is a separate treatability group for all metals, as an example of inorganic debris. A detailed discussion of this is found in the general section of the metals preamble.

Comment Number: 9-F-3
Docket Number: LD12-00078
Commenter: Glass Packaging Institute
Issue: Lead Wastes
Subissue: Validity of transfer of stabilization
Comment: data to D008

EPA's background document on treatment technologies lists the following waste components that determine whether stabilization will achieve the same level of performance on an untreated as on a previously tested waste: fine particulates, oil and grease, organic compounds, chloride compounds and sulfate compounds. [6] The last component is relevant to flue slag because it typically contains 65 percent sulfates (see Table 1), as compared to K061, for example, which contains less than 1 percent sulfates. According to EPA:

> Sulfate and chloride compounds interfere with the stabilization chemical reactions, weakening bond strength and prolonging setting and curing time. Sulfate and chloride compounds may reduce the dimensional stability of the cured matrix, thereby increasing leachability potential. If the concentration of sulfate and chloride compounds in the untested waste is significantly higher than in the tested waste, the system may not achieve the same performance. [7]

Although GPI has no stabilization data on flue slag, we believe that its high sulfate content will preclude meeting the proposed limits for D006, D007 or D008 waste. GPI has arranged to have such data generated, which should be available in February. [8]

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[6] U.S. Environmental Protection Agency, Office of Solid Waste, Treatment Technology Background Document 18-3 (1989).

[7] *Id.* 18-5.

[8] The thirty (30) day deadline required in the proposed rule to submit such data was unachievable for this waste because of the twenty-eight (28) day curing time aspect of conducting stabilization tests on hazardous waste.

COMMENT NUMBER: 9-F-3

DOCKET NUMBER: LD12-00078

COMMENTER: GLASS PACKAGING INSTITUTE

ISSUE: Lead Wastes

SUBISSUE: Validity of transfer of stabilization data to D008

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1)With the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-F-4
Docket Number: LD12-00104
Commenter: The Wheland Foundry
Issue: Lead Wastes
Subissue: Validity of transfer of stabilization data to D008
Comment:

The BDAT treatment criteria were based on K061 wastes for cadmium and F006 wastes for lead. These wastes, particularly the F006 waste, are considerably different from foundry cupola emission control baghouse dusts. Foundry cupola baghouse wastes can have several characteristics or constituents which hinder stabilization using a cement-based solidification as was done for F006. These include the very fine particle size and the high iron, zinc, and other metals contents. Because the treatment technology proposed for D008 wastes is based on treatment of wastes which did not encompass these problems, it is unrealistic to assume that treatment of all D008 wastes will be able to meet these criteria.

COMMENT NUMBER: 9-F-4

DOCKET NUMBER: LD12-00104

COMMENTER: THE WHELAND FOUNDRY

ISSUE: Lead Wastes

SUBISSUE: Validity of transfer of stabilization data to D008

RESPONSE:

The Agency agrees that the foundry wastes are different from F006 and K061 because of particle size and the presence of other metals. The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-F-5
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Validity of Transfer of stabilization data to D008
Comment:

This illustrates GNB's basic point. EPA seems to have reached its conclusions on stabilization and thermal recovery based on invalid assumptions. As stated, EPA has proposed a technology transfer of chemical stabilization based on the treatment of F006 wastes (electroplating wastewater treatment sludges). This proposed transfer is totally inappropriate in view of the "accuracy-corrected" performance data for untreated and treated F006 wastes presented in EPA's BDAT Background Document for F006.

Table 1 gives the F006 corrected performance data used to derive a lead treatment standard of 0.51 mg/l TCLP leachate for stabilized material. None of the five data points involved materials from the secondary lead industry because F006 wastes were the materials in question. Four of the five data points have an average lead content of 212 ppm as received (0.02 percent lead as received). The average TCLP concentration for these four data points is 4.8 ppm as received. The average lead TCLP concentration for the stabilized material for these four data points is 0.40 ppm, for an average reduction in lead TCLP concentration of 92 percent.

Comment Number: 9-F-5 continued
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Validity of transfer of stabilization data to D008
Comment:

Only one data point used by EPA indicated a lead content above 500 ppm, 24,500 ppm as received (2.45 percent lead as received) and a lead TCLP concentration of 50.2 ppm as received. Also, this data point had an oil and grease content of 1,430 mg/kg and a TOC content of 5,960 mg/kg. The source of this material is unknown. The calculations used to derive the 0.51 mg/kg lead TCLP standard are shown in Table 2.

GNB wishes to emphasize that the five data points EPA is relying on to support its conclusion on the 2.5 percent lead content threshold are, individually and in the aggregate, a wholly insufficient base upon which to properly ground a conclusion of this significance. There seems to be no valid reason why EPA cannot expand and improve the universe of data upon which it relies in this context.

In the secondary lead industry, even low-lead content materials (3 to 5 percent lead by weight) may have a lead TCLP concentration of 150 to 250 ppm or higher. Moreover, the shape and physical form of the materials vary widely compared to wastewater treatment sludges from electroplating facilities. Many materials may require crushing, grinding and/or screening prior to stabilization. It is ludicrous, therefore, for EPA to assume that four or five electroplating wastewater sludge samples are representative of the universe of D008 wastes.

Comment Number: 9-F-5 (continued)
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Validity of transfer of stabilization data to D008
Comment:

For all of these reasons GNB therefore requests that any treatment standard for the recovery of lead not be limited to thermal recovery. Instead, the standard should simply specify "the reclamation and recovery of lead as a method treatment" without regard to the specific recovery technology employed.

Comment Number: 9-F-5 (cont.)
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead
Subissue: Validity of Transfer of Stab. data to D008
Comment:

TABLE 1

Accuracy Corrected Performance for Untreated and Treated F006 Wastes by Stabilization

Metals Concentrations (ppm)

Source	Lead
Auto part manufacturing	
Unstabilized	
As received	409
TCLP	10.7
Stabilized	
TCLP	0.39
Small engine manufacturing	
Unstabilized	
As received	113
TCLP	3.37
Stabilized	
TCLP	0.39
Circuit board manufacturing	
Unstabilized	
As received	156
TCLP	1.0
Stabilized	
TCLP	0.41
Unknown	
Unstabilized	
As received	169
TCLP	4.22
Stabilized	
TCLP	0.40
Unknown	
Unstabilized	
As received	24,500
TCLP	50.2
Stabilized	
TCLP	0.29

Comment Number: 9-F-5 (Cont.)
Docket Number: LD12-00202
Commenter: GNB, Inc
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Subissue: Validity of Transfer of stab. data to D008
Comment:

TABLE 2

Regulated Constituents and Calculated Treatment Standards for F006

Source	Lead ppm
Auto part manufacturing	0.39
Small engine manufacturing	0.39
Circuit board manufacturing	0.41
(Unknown)	0.40
(Unknown)	0.29
Average	0.37
Number of Samples	5
Variability Factor	1.37%
Treatment Standard	0.51 ppm

COMMENT NUMBER: 9-F-5

DOCKET NUMBER: LD12-00202

COMMENTER: GNB, INC.

ISSUE: Lead Wastes

SUBISSUE: Validity of transfer of stabilization data to D008

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

EPA has since received data on stabilization of many types of D008 nonwastewaters (slags and glass wastes, as well as wastewater treatment sludges) that indicate that these wastes can be stabilized to concentrations of 5.0 mg/l. Some of the wastes for which data have been submitted even contained lead at levels greater than 25 percent levels. Therefore, the Agency believes that the F006 data, as well as data received on stabilization of D008 nonwastewaters, support a treatment standard of 5.0 mg/l (EP leachate) for D008 nonwastewaters.

COMMENT NUMBER: 9-F-5 (continued)

DOCKET NUMBER: LD12-00202

COMMENTER: GNB, INC.

ISSUE: Lead Wastes

SUBISSUE: Validity of transfer of stabilization data to D008

RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead. (Also, glass waste may not be inorganic debris and may be classified as D008 nonwastewaters.)

Comment Number: 9-G-1
Docket Number: LD12-00131
Commenter: TISCHLER/KOCUREK
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

Tyler Pipe's treatment using high-magnesium lime generates a wastewater sludge that has a TCLP leachate concentration of 1 to 2 mg/L during normal operation. Based on EPA's F006 data, addition of 50 percent lime/fly ash (dry weight) to this sludge would be required to achieve BDAT. Tyler Pipe has not tested this procedure to determine whether or not it will provide the required degree of lead stabilization. However, we believe that even if the additional reduction in leachate concentration is achieved, it is not necessarily a more environmentally acceptable alternative than the current waste management system.

The stabilization process envisioned by the Agency would increase the volume of waste that must be land disposed by at least 50 percent. Thus, the land disposal facility will have to be 50 percent larger than it would be without this additional stabilization. This will likely increase the surface area of the disposal site, increasing the amount of precipitation that is available to generate leachate. It should also be pointed out that the lime/fly ash stabilizing agent would be providing as much a diluting as a stabilizing effect.

The Tyler Pipe wastewater sludges are disposed of in a company-owned monofill; therefore, there are no other wastes that can cause an acidifying action to mobilize the metals to the extent provided by the TCLP. In addition, the dewatered sludge that is placed in the landfill dries to an almost impermeable mass. The TCLP extract concentrations are thus a very over-conservative estimate of the actual leaching that could take place from the wastewater sludge (which is by definition not a hazardous waste). Tyler Pipe believes that it is probable that other facilities with similar wastewater sludges also dispose of these in monofills or industrial waste landfills that pose a lessor hazard than the municipal landfill scenario that is the basis of the TCLP. EPA has previously made a similar observation in its discussion of the proposed revisions to the toxicity characteristic (51 **Federal Register** 21654/5, June 13, 1986).

Tyler Pipe also has extensive experience in disposing of the D008 nonwastewater in their on-site landfill. Prior to the installation of the new treatment system, the dewatered sludge, which at that time was a D008 nonwastewater, was placed in the on-site landfill. This landfill, as mentioned above, is now a RCRA-permitted disposal facility (it originally was an interim status facility) and has a ground water monitoring system that has been in operation since 1981. There has not been any indication of lead contamination of the ground water that underlies the landfill, even though the disposed sludge was characteristically hazardous due to its lead content. The wastewater sludge, which now meets the D008 threshold limits and is nonhazardous, has a lower potential to leach lead to the ground water than the sludge disposed of in the past — additional stabilization of the sludge would not provide any significant increase in protection to the ground water.

COMMENT NUMBER: 9-G-1
DOCKET NUMBER: LD12-00131
COMMENTER: TISCHLER/KOCUREK
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency thanks the commenter for the input. EPA has decided to promulgate standards for lead nonwastewaters of 5.0 mg/l EP. For nonwastewater forms of lead exhibiting a characteristic toxicity, the Agency suggests treatment by stabilization. The treater is, however, free to choose any acceptable method of treatment (including any acceptable stabilizing agent) to treat characteristic lead wastes to below 5 mg/l EP.

Comment Number: 9-6-2
Docket Number: L012-00117
Commenter: Exide Corporation
Issue: Lead
Subissue: Stabilization as an Effective Treatment Technology for Lead wastes
Comment:

Proposed Treatment Standards for D008 Low Lead Subcategory Wastes

For nonwastewater forms of D008 wastes that contain less than 2.5% lead, EPA has proposed a BDAT treatment standard of 0.51 mg Pb/l (following treatment by stabilization). EPA has proposed an alternative treatment standard at the characteristic level of 5.0 mg Pb/l.

EPA has established its proposed BDAT treatment standard of 0.51 mg Pb/l based upon two sets of stabilization data from electroplating wastewater treatment sludges (F006) and wastewater treatment sludges from explosives manufacturing (K046). According to EPA, both of these data sets indicate that conventional stabilization processes can reduce the leachability of lead to concentrations lower than EP levels.

Exide Corporation is very concerned that the F006 and K046 wastes which were subjected to EPA stabilization studies are not representative of the entire universe of D008 wastes and thus that the data transfer may not be appropriate. Exide Corporation- is also aware that the Secondary Lead Smelter Association (SLSA) has recently submitted data to EPA regarding the treatment of blast furnace slag by stabilization. Since it is Exide's understanding that the SLSA stabilization data for the blast furnace slag supports the promulgation of a BDAT treatment standard at the characteristic level, Exide Corporation is even more concerned that EPA's data transfer is not appropriate.

Given SLSA's data, the lack of other suitable data, and EPA's acknowledgement (54 Fed. Reg., 48437 and 48439) that treatment data for the lead recycling industry are not available, it is Exide Corporation's belief that, at least until other data (which are more representative of wastes generated by the lead-acid battery manufacturing and secondary lead smelting industries) are generated and assessed, EPA should promulgate a final rule for D008 low lead subcategory wastes based upon the characteristic level of 5.0 mg Pb/l.

COMMENT NUMBER: 9-G-2
DOCKET NUMBER: LD12-00117
COMMENTER: EXIDE CORPORATION
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes
RESPONSE:

The Agency appreciates the commenter's input. The Agency agrees that F006/K046 data cannot be transferred to all D008 wastes. EPA used the best data it had at proposal. The Agency has better data now, but believes more data (particularly relating to possible treatability groups) would still be necessary if standards significantly below the characteristic level were to be established for D008 wastewaters. EPA has decided to promulgate a standard for lead nonwastewaters of 5.0 mg/l EP. For nonwastewater forms of lead exhibiting a characteristic toxicity, the Agency suggests treatment by stabilization. The treater is, however, free to choose any acceptable method of treatment (including any acceptable stabilizing agent) to treat characteristic lead wastes to below 5 mg/l EP.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms

COMMENT NUMBER: 9-G-2 (continued)

DOCKET NUMBER: LD12-00117

COMMENTER: EXIDE CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency believes the data presented by this commenter show treatment to the level of 5 ppm lead. Additionally, either vitrification or stabilization is an appropriate technology as long as the treated waste meets the BDAT standard.

Comment Number: 9-G-3
Docket Number: LD12-00088
Commenter: Intermet Foundries, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment
Comment: Technology for Land Wastes

Intermet Foundries Inc. submits these comments regarding the above proposed rule because of the concern that for the sake of this regulation the foundry industry is being compared to industries with which there are few, if any, similarities.

We speak specifically of the stated treatment technology for wastes containing lead (D008) where the treatment standard is based on technology for treating electroplating wastewater (F006) and explosives manufacturing (K046). These technologies do not properly characterize the wastes generated by the foundry industry. Since they are not typical of the foundry industry how can they be used to set treatment standards for the foundry industry?

By EPA's own admission the first step used in developing treatment standards "is to divide the wastes into groups based on similar chemical and physical properties." Both the chemical matrix and the physical properties of the affected foundry waste are different from either the electroplating waste or waste from explosives production. We therefore strongly urge EPA to reconsider the methodology used as the basis for the establishment of proposed regulations for D008 wastes.

COMMENT NUMBER: 9-G-3
DOCKET NUMBER: LD12-00028
COMMENTER: INTERMIT FOUNDRIES, INC.
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency believes the data presented by this commenter show treatment to the characteristic level of 5 ppm lead.

Comment Number: 9-G-4
Docket Number: L012-00042
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes.
Comment:

Dissimilarity In Wastes

Technology for electroplating wastewater treatment sludges (F006) and explosives manufacturing (K046) sets the treatment standard for the Low Lead Subcateogry. These waste streams, F006 and K046 are so unlike those generated by foundries and ingot manufacturers that treatment data from F006 and K046 cannot and should not be used to set treatment standards for the foundry and ingot industries. When stabilization technology is utilized, EP and TCLP levels are not consistently near or below the proposed treatment standards for nonwastewater waste containing lead or cadmium (attachments 3, 4 and 5). See separate submission dated Dec. 21 from the American Foundrymen's Society by G. Mosher. See also the data submitted in connection with development of the effluent limitations guidelines. We hereby incorporate by reference as if fully set forth herein all documents described in "Section XV Availability of Technical Information" of "Final Regulation, Metal Molding and Casting Industry Point Source Category Effluent Limitation Guidelines, Pretreatment Standards and New Source Performance Standards, Environmental Protection Agency," Federal Register 50, No. 210, Pages 45212-45273.

COMMENT NUMBER: 9-G-4

DOCKET NUMBER: LD12-00042

COMMENTER: AMERICAN FOUNDRYMEN'S SOCIETY, INC.

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The data available to EPA show that treatment to levels of 0.2 to 14 mg/l is achievable for D008 nonwastewaters. These new data represent treatment of nonwastewaters containing up to 25 percent lead.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency believes the data presented by this commenter show treatment to the level of 5 ppm lead.

The Agency appreciates the commenter's input. EPA has decided to promulgate standards for lead nonwastewaters at 5.0 mg/l EP. The treater is, however, free to choose any acceptable method of treatment (including any acceptable stabilizing agent) to treat characteristic lead wastes to below 5 mg/l EP.

Comment Number: 9-G-5
Docket Number: LD12-00046
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective Treatment Technology for lead wastes
Comment:

A treatment process has been developed for this facility to treat the foundry sand with a 10% iron dust addition to reduce EP Toxicity leach concentrations to levels below 5.0 ppm. This treatment process, however, does not consistently meet a 0.51 ppm BDAT Treatment Standard for lead. From the proposed rules for third-third BDAT treatment limit standards, no mention is made of the previously used 80% Student-T statistical method for EP Toxicity waste determination. The elimination of the statistical determination method to define compliance limits reduces the required target treatment standard to an even lower limit for the treatment facility.

It is appropriate at this time to discuss why the iron treatment technology is proper for D008 waste foundry sand. EPA insists that it is appropriate to lower the treatment limit standard for lead to reduce the threat to human health and the environment. They should, however, look at the overall impact on the environment rather than only treatment standards. In other words, EPA should look at the total potential impact of a particular waste on the environment once it has been land disposed rather than the waste's leaching potential prior to landfilling.

Comment Number: 9-G-5 continued
Docket Number: LD12-00046
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

The Foundry Industry in the United States is a major contributor to the D008 EP Toxicity characteristic for lead wastes requiring land disposal. Many of these wastes are being placed into captive monofills for disposal. EPA needs to study the leaching potential of these monofill sites as applied to the treatment technology used to treat the wastes placed into the fill sites. EPA has decided that the EP Toxicity and/or the TCLP test is an appropriate test to look at the leaching potential of many wastes. It is common knowledge that the biological breakdown of wastes found in a sanitary landfill (municipal garbage) forms an acidic condition in the fill site. Inert foundry sand placed into a monofill site does not exhibit those same acidic conditions as found in a sanitary landfill.

Since lead is an amphoteric metal, the ph of the leachate from a fill site is highly critical when looking at the mobility of lead and the potential for ground water contamination. The use of only the TCLP test for lead is inappropriate for a monofill site where acidic conditions do not exist. The TCLP test results do not reflect actual leaching potential of a monofilled waste especially if a lime treatment is used on the deposited waste material. The lime present in the waste during the TCLP test tends to neutralize the acidic conditions of the leach test resulting in low leach test concentrations for lead. In contrast, this same waste placed in a monofill site would exhibit a high pH for the leachate greatly increasing the concentration of lead in that leachate.

Sanitary landfills exhibit highly variable conditions and can present a high liability risk to industrial solid waste users of such sites if ground water contamination should occur. For this reason, many industrial generators of solid wastes have opened their own monofill sites. This is a common practice for foundries, which often treat EP Toxic solid wastes for deposit into these monofill sites. These wastes are dry granular materials of relatively high volume and bare very little resemblance to the sludge generated by a plating operation for which EPA based the proposed treatment limit of 0.51 ppm for lead.

Comment Number: 9-G-5 continued
Docket Number: LD12-00046
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

Does EPA have water leach data on the BDAT treatment technology waste material for which the proposed D008 EP characteristic treatment standard limit of 0.51 ppm lead is derived? From treatment analysis of foundry sands, it has been found that water leach concentrations of lead for untreated wastes are normally well below 5.0 ppm. Water leach lead concentrations for treated foundry sand utilizing the iron dust treatment technology are normally 0.001 ppm. However, water leach lead concentrations for treated foundry sands utilizing a lime based treatment technology often exceed 5.0 ppm.' It is doubtful that foundry sand can achieve a 0.51 ppm TCLP lead concentration utilizing the BDAT based treatment technology. Regardless of what is achievable, the use of this technology for monofilled foundry sand has the potential of increasing lead leaching concentrations well above the level expected from even non-treated foundry sand wastes.' EPA must consider the final landfilling technology utilized for waste disposition or the resulting lead mobility will be in direct opposition of the intended land ban rule. A net increase in lead leachability of 1,000 to 10,000 times current levels at this facility is significant and deserves EPA investigation considering the catastrophic impact that different technology could have on the threat to human health and the environment.

Initial parameter testing of the wastes at this facility began in February of 1982. Initial waste testing was based on an EP water leach analysis of the various waste streams indicating no significant levels of the EP Toxicity listed metals present in the leachate. The EP Toxicity testing of these same wastes indicated the presents of lead in these same waste streams.

An iron dust treatment technology for the various waste streams was devised with testing of the wastes both treated and non-treated taking place between May of 1984 and January of 1986. Initial treatment results of the various waste streams looked extremely good with lead leaching concentrations of 0.4 ppm or less. All EP Toxicity metals except lead were dropped from the waste testing procedure as they were found to be present at insignificant concentrations in the various waste streams. Monthly waste stream sampling initiated in 1985 has shown significant sampling and/or analytical variance among samples that was not apparent at initial testing of the treatment technology. Bench scale testing is not adequate to precisely predict full scale treatment effectiveness and variances.

Comment Number: 9-G-5 continued
Docket Number: LD12-00046
Commenter: American Foundrymen's Society
Issue: Lead wastes
Subissue: Stabilization as an effective treatment
Comment: technology for lead wastes

The following test results are noted as to which results were from the EP Toxicity procedure, the water leach test procedure, and treated or non-treated waste streams.

INITIAL TESTING OF WASTE STREAMS

Foundry Sand

							Results			
Date	Test	Material	Ar	Ba	Cd	Cr	Pb	Hg	Se	Si
5/22/84	EP Tox	Treated					<.1			
7/24/84	EP Tox	Treated	<.001	<.2	.02	.08	.4	<.0001	<.001	<.02
5/22/84	EP Tox	Non-Treated					61.2			
7/24/84	"	"	<.001	<.2	.26	<.05	60.2	<.0002	<.001	<.02
2/19/82	"	"	<.001	.4	.20	<.05	50.2	<.0002	.002	<.02
2/15/82	"	"	<.001	<.1	.2	.05	16.8	<.0002	<.002	<.01
2/15/82	EP Water	"	<.001	<.2	<.01	<.05	.16	<.0002	.004	<.02

Continuous Cleaner Sand

5/22/84	EP Tox	Treated					<.1			
7/24/84	"	"	<.001	<.2	<.01	.06	<.1	<.0002	<.001	<.02
5/22/84	EP Tox	Non-Treated					5.4			
7/24/84	EP Tox	"	.005	<.2	.05	.42	120	<.0002	<.001	<.02
2/15/82	EP Tox	"	<.001	.2	.1	<.05	3.3	<.0002	<.001	<.02
2/15/82	EP Water	"	<.001	<0.2	<.01	<.05	<.005	<.0002	.002	<.02

Comment Number: 9-G-5 continued
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Continuous Cleaner Baghouse Dust										
5/22/84	EP Tox	Treated					<.1			
7/24/84	EP Tox	Treated	<.001	<.2	<.01	.06	.2	<.0002	<.004	<.02
5/22/84	EP Tox	Non-Treated					6.1			
7/24/84	"	"	<.001	<.2	0.23	0.1	8.2	<.0002	<.001	<.02
2/15/82	"	"	<.001	.4	.12	<.05	9.7	<.0002	<0.01	<.02
1/28/86	EP Tox	"	<.002	.4	<.01	<.05	2.2	<.0002	<.04	<.02
2/15/82	EP Water	"	<.001	<.2	<.01	<.05	.069	<.0002	.003	<.02
1/28/86	EP Tox	Treated	<.002	.4	<.01	<.05	.4	<.0002	<.04	<.02
Core Butts										
5/22/84	EP Tox	Non-Treated					<.1			
7/24/84	EP Tox	Non-Treated	<.001	<.2	.02	<.05	2.0	<.0002	<.001	<.02
5/22/84	EPTox	Treated					<.1			
7/24/84	"	Treated	.003	<.2	<.01	.12	<.1	<.0002	<.001	<.02
7/24/84	"	Non-Treated					4.4			
2/15/82	"	"	<.001	<.2	0.19	<.05	45.8	<.0002	.001	<.02
2/15/82	EP Water	"	<.001	<.2	<.01	<.05	0.020	<.002	.007	<.02
Core Room Waste										
5/22/84	EP Tox	Non-Treated					<.1			
2/15/82	"	"	<.001	<.2	<.01	<.05	.014	<.0002	<.001	<.02
Typical Treatment Material			Ar	Ba	Cd	Cr	Pb	Hg	Se	Si
5/22/84	EP Tox	Non-Treated					<.1			
2/15/82	EP Tox	"	<.001	1.4	<.01	<.05	<.1	<.0002	<.001	<.02
2/15/82	EP Water	"	.003	<.2	<.01	<.05	.18	<.002	<.001	<.02
Refractory Materials										
7/5/85	EP Tox	"	<.001	<.2	<.01	<.05	.2	<.0002	<.001	<.02
Furnace Liner										
6/19/85	EP Tox	"	<.001	<.2	<.01	<.05	<.1	.0004	<.001	<.02

Comment Number: 9-G-5 continued
Docket Number: LD12-00046
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

RESULTS OF EP TOXICITY TESTING OF TREATED MATERIALS

Foundry Sand		Continuous Cleaner Sand	
Date	Pb (ppm)	Date	Pb (ppm)
9/12/83	.01	9/12/83	0.6
9/12/83	.02	9/12/85	0.1
9/12/85	1.1	9/12/85	1.0
10/21/85	0.1	1/03/85	4.3
2/21/86	0.6	3/26/85	0.2
6/19/86	0.6	7/24/85	1.4
10/22/86	0.4	11/21/86	0.1
2/16/87	1.6	3/17/87	0.1
11/19/87	0.78	7/30/87	0.17
3/30/88	1.6	12/28/87	0.40
7/20/88	0.27	4/27/88	3.7
11/28/88	1.4	8/17/88	0.06
2/23/89	1.3	12/16/88	0.60
6/22/89	3.0	4/12/89	0.2
10/5/89	2.9	11/15/89	0.5

Core Butts		Continuous Cleaner Baghouse Dust	
Date	Pb (ppm)	Date	Pb (ppm)
9/12/85	0.2	9/12/85	0.1
9/12/85	0.1	9/12/85	0.1
9/12/85	0.1	9/12/85	0.1
12/18/85	0.1	9/12/85	0.1
4/16/86	0.1	1/28/86	0.1
8/22/86	0.1	7/28/86	0.4
10/29/86	0.1		
12/17/86	0.2	3/3/87	0.1
4/27/87	0.3	6/12/87	0.1
8/24/87	0.1	9/18/87	0.26
1/20/88	0.14	10/21/87	0.2
5/24/88	1.1	2/25/88	0.06
8/10/88	0.19	6/15/88	0.10
		10/19/88	2.0
4/18/89	0.2	11/18/89	0.1
8/24/89	0.8	5/17/89	0.1

Comment Number: 9-G-5 continued

Docket Number: LD12-00046

Commenter: American Foundrymen's Society, Inc.

Issue: Lead Wastes

Subissue: Stabilization as an effective treatment technology for lead wastes.

Comment:

SUMMARY OF MONTHLY EP TOXICITY TESTING OF VARIOUS WASTE STREAMS

Waste Stream	X Mean Pb (ppm)	S Std. Deviation	CI Confidence Interval Upper limit
Fdry. Sand	1.045	0.948	1.374
Continuous Cleaner Sand	0.895	1.320	1.353
Core Butts	0.255	0.294	.357
Continuous Cleaner Baghouse Dust	0.261	0.489	.431

The 80% Student-T upper limit for EP-Toxicity leach test for lead in the worst waste stream is 1.374 ppm. If EPA is using a higher confidence interval to establish BDAT Standard limits, this figure would be a higher limit for this technology. It should be noted that there are 4 waste streams depicted by these results that are very similar when compared to an electroplating sludge waste, however, there is more than 3 times greater leaching potential between the sand and the dust from the continuous cleaner operation. If treatment standards are set too low, it may not be feasible to treat all wastes to meet compliance limits due to variables between generated wastes.

Comment Number: 9-G-5 continued
Docket Number: LD12-00046
Commenter: American Foundreymen's Society, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment Technology for lead wastes
Comment:

ADDITIONAL SAMPLING

Samples were taken in July of 1989 from each waste stream entering the facility monofill site to further classify the wastes and to again check for any parameter that may be of concern in leaching potential from the site. The data of most concern is a comparison between EP-Toxicity leach and water leach test results of lead for the various waste streams.

Waste Stream	EP Toxicity Pb (ppm)	Water Leach Pb (ppm)
Treated Fdry. Sand	0.1	0.003
Treated Crashed Core Butts	0.1	0.003
Treated Cont. Cleaner Sand	0.1	0.004
Treated Cont. Cleaner Baghouse Dust	0.1	0.004
Non-Treated Coreroom Sand	0.4	0.026
Non-Treated Ladle Refractory	0.6	
Non-Treated Furnace Refractory	0.1	

It can be seen that water leach test results for the various wastes streams are within the range of drinking water standards. Therefore, if these wastes are not subjected to acidic conditions, they do not pose a substantial threat to the environment. This facility constructed a monofill site on its own property just behind the foundry even though there are 2 sanitary landfills within a mile of the facility. Testing of the waste streams indicates that there is a potential for lead migration if foundry sand is placed into a sanitary landfill, whereas, the same waste placed into an acid free monofill site exhibits lead leaching potentials of less than 0.2% of the levels that are associated with sanitary landfill conditions. Even though the siting and construction of the monofill site was a long and expensive ordeal, it was felt that the reduction in liability, leaching potential, and threat to the environment by the use of controlled conditions was a sound investment in the future of the company and the community.

Comment Number: 9-G-5 continued
Docket Number: LD12-00046
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

Comparison of PH. vs. Leaching Potential

Foundry sand from this facility is naturally basic. Looking at EP Toxicity test data, initial pH values normally range from 9.2 to 9.5 for the various waste streams requiring disposal. The buffering potential of a treated waste sample tends to influence the EP Toxicity leach concentration of lead. If the final pH is around 5.0 the lead concentration is higher than if the final pH is in the 5.5 to 6.0 range. Using this line of thinking, a higher initial pH as would be obtained by lime or carbonate treatment would result in a higher final pH and a low lead leaching potential utilizing the EP Toxicity test.

This facility initially tested another waste stream that exhibited a higher pH than the other waste streams now being treated and deposited into the monofill site. Finish cleaner baghouse dust had an initial pH of 10.5 and exhibited an EP Toxicity lead leaching potential for an untreated waste of less than 1.0 ppm. (See Table C-II, III, and IV) This same waste, however, exhibited a water leach lead concentration of 18.6 ppm. This was a lead concentration 100 to 3500 times higher than similar wastes exhibiting only slightly lower initial pH values. (See "Methods to Treat EP Toxic Foundry Wastes and Wastewaters" AFS Paper 85-107 for similar results on other foundry waste streams.)

Neither EPA or a sanitary landfill facility "Permitted" to accept "Restricted Wastes" can predict and/or control the pH of the leachate from such a site. The leachate pH controls the concentration of lead in that leachate for the treatment technologies available for metal stabilization. The use of pH control stabilization technology solely for the purpose of neutralizing the effects of the EP Toxicity and/or the TCLP tests for amphoteric lead should be considered "SHAM" technology unless it can be proven that such technology is disposal site effective.

It should be noted that data being presented is based upon EP Toxicity test results and may vary somewhat when the TCLP test is applied to the same waste streams.

This facility is submitting various EP toxicity and water leach data with what QA/QC information that can be assembled in such tight time restraints. All of this data has been previously submitted to either EPA or the State Department of Environmental Management in the form of Operating Permit Requirements or RCRA Part B Permit Applications for this treatment facility.

COMMENT NUMBER: 9-G-5

DOCKET NUMBER: LD12-00042

COMMENTER: AMERICAN FOUNDRYMEN'S SOCIETY, INC.

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency has decided to promulgate a nonwastewater standard for lead (D008) of 5.0 mg/l EP. EPA recognizes that there are a number of highly diverse wastes that can be classified as D008. EPA also realizes that lead is an amphoteric metal and the amphoteric nature can impact the ability to stabilize the waste.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-G-6

Docket Number: LD12-00049

Commenter: RMT

Issue: Lead

Subissue: Stabilization as an Effective Treatment Technology for Lead Wastes

Comment:

RMT has investigated treatment for a number of foundries, both iron and brass, as well as EP-Toxic wastes from other industries. These studies have shown that no one process is effective for all EP-Toxic wastes (for lead and cadmium). What works for one foundry's waste may not work on the next foundry's waste. There are a number of independent variables that may affect the release of lead and cadmium in an EP Toxicity test, variables that are difficult to predict and that may have significant impacts on treatment effectiveness of a given additive.

For example, phosphate addition has been found to be effective at lowering both lead and cadmium leaching from some foundry wastes to levels well below the EP Toxicity test criteria (e.g., Foundries A and B, Table 1). However, for Foundry C, phosphate was not effective at consistently reducing cadmium to below EP-Toxic levels. Furthermore, on a given waste stream, treatment at a designated dosage can result in highly variable results over time, as discussed in Section 5 below.

Use of cement as a treatment additive has not proven consistently effective for all foundry wastes (Table 2). Use of cement at dosages of 15, 20, and 25 percent (by weight) did not reduce lead to below the EP Toxicity test levels. A 30 percent dosage was effective at reducing lead to below the proposed criteria in an EP Toxicity test. However, the same waste sample treated at a 30 percent cement dosage leached lead at 26 mg/L in an EP water test. We feel that the water leach test more accurately reflects leaching conditions in a foundry waste monofill than does the EP Toxicity (or TCLP) test. Treatment of this waste with cement to lower leaching in the EP Toxicity test could possibly result in creating an environmental hazard where none before existed. If the EP water test more accurately reflects the leaching behavior of the treated waste, the leachate from the treated waste would be EP Toxic, due to the high dissolved lead content. The effect of treating this waste with cement is not to render the waste non-EP-Toxic, but rather to shift the problem from an EP-Toxic solid waste to an EP-Toxic leachate under nonacidic leaching conditions.

Comment Number: 9-G-6 continued

Docket Number: LD12-00049

Commenter: RMT

Issue: Lead

Subissue: Stabilization as an Effective Treatment Technology for Lead Wastes

Comment:

Many foundries dispose their waste in foundry waste monofills. In these landfills, the pH of the leaching solution to which the wastes are exposed is usually in the slightly basic range (pH values of 7 to 9). Leachates from water leach tests on EP-Toxic foundry wastes also usually have pH values in the slightly basic range (AFS paper 81-149), although some wastes may have slightly acidic pH values. The water leach test provides a better representation of the leaching character of a foundry waste monofill than does the EP Toxicity test. RMT has worked with numerous foundries evaluating the impact of their waste on ground water, and has not found any cases where the disposal of emission control waste has resulted in lead or cadmium contamination of ground water outside of the landfill. These wastes, as disposed in monofills, do not appear to cause ground water contamination. It would be a grave mistake to treat these wastes to eliminate a regulatory problem (i.e., being classified as EP-Toxic) and, at the same time, create a potential environmental problem due to the enhanced leaching of lead.

Comment Number: 9 - G -6 continued

Docket Number: LD12-00049

Commenter: RMT

Issue: Lead

Subissue: Stabilization as an Effective Treatment Technology for Lead Wastes

Comment:

The BDAT treatment criteria were based on K061 wastes for cadmium and F006 wastes for lead. These wastes, particularly the F006 waste, are considerably different from foundry cupola emission control wastes or other D008 wastes. Specifically, foundry cupola emission control wastes can have several characteristics or constituents that hinder stabilization using a cement-based solidification as was done for F006. These include the very fine particle size and the high iron, zinc, and other metals contents. Since the treatment technology proposed for D008 wastes is based on treatment of wastes which did not encompass these problems, it is unrealistic to assume that treatment of all D008 wastes will be able to meet these criteria.

Comment Number: 9-G-6 continued
Docket Number: LD12-00049
Commenter: RMT
Issue: Lead
Subissue: Stabilization as an Effective Treatment Technology for Lead Wastes
Comment:

TABLE 1

PHOSPHATE TREATMENT OF FOUNDRY WASTES

	EP Toxicity Test Results	
	Cadmium	Lead
	mg/L	mg/L
FOUNDRY A		
Untreated	0.17	8.0
+1.0% Triple Superphosphate	-	0.47
+2.5% Triple Superphosphate		<0.06
+1.15% Phosphoric Acid	0.29	2.4
+1.5% Phosphoric Acid	0.28	1.3
+2.3% Phosphoric Acid	0.20	0.22
+3.46% Phosphoric Acid	0.13	<0.06
FOUNDRY B		
Untreated	6.9	180
+1% Phosphoric Acid	4.4	25
+2% Phosphoric Acid	2.7	12
+3% Phosphoric Acid	0.59	<0.06
FOUNDRY C		
Untreated	8.8	79
3.9% Phosphoric Acid	4.4	9.2
7.8% Phosphoric Acid	0.46	0.16
10% Phosphoric Acid	1.2	0.9
12.5% Phosphoric Acid	0.71	<0.1
20% Phosphoric Acid	3.8	0.4

Comment Number: 9 - G - 6 continued
Docket Number: LD12-00044
Commenter: RMT
Issue: Lead
Subissue: Stabilization as an Effective Treatment Technology for Lead wastes
Comment:

TABLE 2

TREATMENT OF EP-TOXIC FOUNDRY WASTE USING CEMENT

	EP Toxicity Test Results	
	Cadmium	Lead
	------------mg/L	---------
FOUNDRY C		
Untreated Composite EP-Toxic Waste	8.8	79.0
+20% Cement	3.0	12.0
+25% Cement	1.4	1.0
+30% Cement	<0.005	0.3

	EP Water Leach Test Results	
	Cadmium	Lead
	-------------mg/L	----------
Untreated	(not tested)	
+20% Cement	<0.005	12
+25% Cement	(not tested)	
+30% Cement	<0.005	26

NOTE: A 20% dose is 80 grams of foundry waste and 20 grams of Portland cement. The sample was allowed to cure for 1 week, then was ground to pass a 9.5 mm sieve and subjected to an EP Toxicity test.

COMMENT NUMBER: 9-G-6
DOCKET NUMBER: LD12-00049
COMMENTER: RMT
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes
RESPONSE:

The Agency appreciates the commenter's input. EPA has decided to promulgate a standard for lead nonwastewaters of 5.0 mg/l EP. For nonwastewater forms of lead exhibiting a characteristic toxicity, the Agency suggests treatment by stabilization. The treater is, however, free to choose any acceptable method of treatment (including any acceptable stabilizing agent) to treat characteristic lead wastes to below 5 mg/l EP.

EPA recognizes that there are a number of highly diverse wastes that can be classified as D008. EPA also realizes that lead is an amphoteric metal and the amphoteric nature of lead can impact the ability to stabilize the waste.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-G-7
Docket Number: LD12-00051
Commenter: American Cast Metals Association
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment
Comment: technology for lead wastes

While the ACMA understands the need for the EPA to take a generic approach in grouping similar wastes or processes in a rulemaking of this magnitude, this is not a valid starting point for all industries or all wastes. While there are some similarities between foundry waste and wastes of electroplaters and explosive manufacturers with whom foundries are grouped, there is no similarity in the effectiveness of treatment technologies between the group members.

Treatment of foundry waste containing lead/or cadmium with the stabilization technique applicable to the other industries' waste streams does not result in EP and TCLP levels consistently below the proposed treatment standard for non-wastewater waste. This, of course, defeats the only meaningful reason for creating such industry or waste groupings.

COMMENT NUMBER: 9-G-7

DOCKET NUMBER: LD12-00051

COMMENTER: AMERICAN CAST METALS ASSOCIATION

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency appreciates the commenter's input. EPA has decided to a promulgate standard for lead nonwastewaters of 5.0 mg/l EP. The treater is, however, free to choose any acceptable method of treatment (including any acceptable stabilizing agent) to treat characteristic lead wastes to below 5 mg/l EP.

Comment Number: 9-G-8
Docket Number: LD12-00078
Commenter: Glass Packaging Institute
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

A. Flue Slag

The Agency's rationale for proposing BDAT standards based on stabilization is that "most metals are amenable to conventional metal hydroxide or sulfur precipitation and stabilization." Preamble at 48,429/1. Because characterization data are limited, the proposed treatment standards for many metal-bearing wastes are based on a transfer of performance data from other wastes containing these metals having similar waste characteristics. Id. at 48,429/2. The Agency describes most metal-waste matrices as being inorganic solutions, wastewater treatment sludges, or incinerator ash-type residues. Coincidentally, the performance data EPA used to develop the proposed standards for D006, D007 and D008 represent each of these matrices: K062 (inorganic solution), F006 (wastewater treatment sludge) and K061 (electric arc furnace dust). In terms of physical composition, flue slag is more like K061 than the other two wastes.

Comment Number: 9-G-8 continued
Docket Number: LD12-00078
Commenter: Glass Packaging Institute
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment
Comment: technology for lead wastes

These comments demonstrate the danger of imposing specific treatment limits on D006, D007 and D008 waste based on transfer of performance data from other wastes containing these metals. Stabilization may indeed decrease the leachability of chromium, cadmium, and lead in flue slag and refractory brick. However, no empirical evidence exists for concluding that these levels will be (1) below the characteristic levels for these metals, or (2) an order of magnitude below these levels, as required under the proposed rule. Therefore, for characteristic wastes for which EPA lacks any stabilization data, but nonetheless believes that stabilization will minimize leaching of metals, EPA should prescribe a method of treatment (i.e., stabilization) rather than a treatment level. This suggestion is similar to the alternative approach EPA is considering for D006 waste.

Comment Number: 9-G-8 continued
Docket Number: LD12-00078
Commenter: Glass Packaging Institute
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

Regarding flue slag, if EPA rejects GPI's suggestion to promulgate the method of stabilization rather than specific stabilization-based treatment limits for chromium-, cadmium-, and lead-containing wastes, GPI urges EPA to establish a generic treatment variance from these limits for high-sulfate containing wastes. Again, although GPI's stabilization data on this waste will not be available until February, in light of EPA's finding that sulfates reduce the dimensional stability of the cured matrix, it is predictable that flue slag and other high sulfate-containing wastes cannot be stabilized to achieve the proposed BDAT limits.

Rather than rely on site-specific treatability variances for this waste, a generic variance is needed to provide the inevitable regulatory relief that will be required from the final rule. Not only would EPA need to devote substantial resources to process individual variances, but of greater importance, until the variances are granted, generators of these wastes cannot dispose of them. This in turn will lead to the stockpiling of these wastes, which itself is problematic given the prohibition on storing such wastes (40 C.F.R. § 268.50) for purposes other than facilitating treatment. Consequently, if EPA promulgates treatment levels for D006-D008, a generic variance from these levels should be promulgated for high-sulfate containing wastes.

COMMENT NUMBER: 9-G-8
DOCKET NUMBER: LD12-00078
COMMENTER: GLASS PACKAGING INSTITUTE
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes
RESPONSE:

The Agency is not promulgating a method of treatment for D008 wastes.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency has developed a separate treatability group for all inorganic solids debris. The Agency has determined that examples of solid debris are slags, glass, concrete, and bricks. The Agency has issued a two-year capacity variance for these wastes.

Comment Number: 9-G-9
Docket Number: L012-00082
Commenter: Schuylkill Metals Corporation
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

"RECOMMENDED BDAT FOR D008 SOLIDS

Schuylkill believes the proposed regulations for BDAT of D008 wastes should be changed to a dual technology with recycling the primary process. The recycling will be encouraged by establishing BDAT on furnace slag to be disposed "as is" in a secure onsite monofill. The secondary technology for those materials/wastes which can not be recycled will be stabilization."

COMMENT NUMBER: 9-G-9

DOCKET NUMBER: LD12-00082

COMMENTER: SCHUYLKILL METALS CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

For D008 nonwastewaters, the Agency is promulgating a treatment standard of 5 mg/l as measured by EP. The Agency has stated before in other rulemaking that it prefers to set numerical treatment standards rather than a treatment method.

Comment Number: 9-G-10
Docket Number: LD12-0097
Commenter: ARA
Issue: Lead
Subissue: Stab. as Effective Technology for lead
Comment:

Proposed Regulations and the Secondary Aluminum Industry

The Aluminum Recycling Association believes that proposed treatment standards for lead, cadmium, and chromium as they occur in secondary aluminum furnace and incineration-related baghouse dust are technologically unattainable and should not be implemented. Further, current treatment standards for these metals have been and remain adequate from the environmental standpoint. The ARA bases its conclusions on the following criteria:

Comment Number: 9-G-10 (cont.)
Docket Number: LD12-0097
Commenter: ARA
Issue: Lead
Subissue: Stab. as Effective Technology for Lead
Comment:

I. Non-Applicability of Data Transfer Methodology

- In determining new standards for lead, cadmium, and chromium, the EPA applied data it had previously obtained from other industries, and in particular electroplating and steelmaking;

- This procedure is inapplicable to the secondary aluminum industry since its manufacturing processes and generated wastes are significantly different--physically and chemically--from that used to set treatment standards:

- ~~Non-~~waste water is a very broad term encompassing very wet sludges, as well as slightly wet solids and should not include or be transferable to dry furnace and incineration-related baghouse dust;

- It is easier to remove impurities from electroplating waste waters since effective techniques inducing precipitation of lead, cadmium, and chromium in solution are available; however, water solution technology is not transferable to dry solids or to the secondary aluminum smelter's waste which, as furnace and incineration-related baghouse dust, is a dry solid particulate;

- Stabilization techniques, as the EPA itself indicates, are not effective for metals in complex matrices. The secondary aluminum industry's furnace and incineration-related baghouse dust is a complex matrix mixture of metal chloride salts and, therefore, not easily separated out of solution by current technologies;

- Incineration or other heat-treating technologies currently in use in steelmaking are not applicable in the treating of secondary aluminum furnace and incineration-related baghouse dust because the dust waste originally emanates from a high temperature smelting process and, therefore, is not readily susceptible to further heat treatment.

COMMENT NUMBER: 9-G-10
DOCKET NUMBER: LD12-00097
COMMENTER: ARA
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency used the best data it had available to set proposed standards for lead. Since the proposed rule, EPA has received data from wastes more similar to D008 wastes than the data used for proposal, and these data show that a standard of 5.0 mg/l EP is appropriate. If this level is still unachievable, the disposer can request a treatability variance.

The Agency realizes that lead, cadmium, and chromium can be precipitated in wastewaters; however, for nonwastewaters, EPA suggests stabilization as an effective method of treatment.

COMMENT NUMBER: 9-G-10 (continued)

DOCKET NUMBER: LD12-00097

COMMENTER: ARA

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency disagrees with the commenter and believes that heat-treating technologies are acceptable methods of treating and recovering metals. EPA points to K061 (treatment of the residue from electric steelmaking) as an example.

Comment Number: 9-G-11
Docket Number: LD12-00104
Commenter: The Wheland Foundry
Issue: Stabilization as an effective treatment
Subissue: Technology for lead wastes
Comment:

Wheland Foundry has been investigating treatment methods on its cupola emission control baghouse dust. Results of bench-scale testing have shown that no process (of those tested) consistently reduces lead and cadmium to below the proposed criteria, although there are methods that will reduce lead and cadmium to below the EP Toxicity level (Table 1). Only one treatment additive and dosage (7.5 percent magnesium oxide) on one sample reduced both lead and cadmium to below the proposed treatment criteria. However, it is unlikely that this level of treatment could be consistently reached given the variability in the waste and the difficulty of obtaining consistently thorough mixing in the field. Also, the addition of magnesium oxide to the waste increased lead leaching in a water leach test to 0.4 mg/L, a value which is of concern to us. Cement was not tested on this waste for two reasons. First, previous work using cement by our consultant has shown that cement does not consistently treat foundry emission control wastes to below EP Toxicity criteria. Second, and more important, it has been found that cement-treated foundry wastes will leach lead at concentrations over 1 mg/L in a water leach test (e.g., an EP Water Test). The water leach test is a more realistic simulation of the leaching environment that our waste is exposed to than is an acid leach test. Treatment of our waste with cement and on-site disposal could then cause an environmental problem where none would otherwise exist.

Comment Number: 9-G-11 continued
Docket Number: LD12-00104
Commenter: The Wheland Foundry
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

TABLE 1

CUPOLA #1 BAGHOUSE TREATMENT TESTING RESULTS

Sample	EP Toxicity Test Results Cadmium	 Lead
	----------mg/L----------	
Sample #1 Untreated	5.2	88
+ 10.0% Metallic iron	1.9	0.7
+ 20.0% Metallic iron	0.35	0.1
+ 2.5% Phosphoric acid	2.3	0.2
+ 5.0% Phosphoric acid	1.0	< 0.1
+ 7.5% Phosphoric acid	0.48	< 0.1
+ 7.5% Magnesium oxide	0.029	0.3
+ 15.0% Magnesium oxide	0.014	0.9
+ 22.5% Magnesium oxide	0.005	1.4
Sample #2 Untreated	9.80	85.1
+ 7.5% Triple super phosphate (TSP)	2.70	0.34
+ 10.0% TSP	1.07	0.11
+ 12.5% TSP	0.77	0.15
+ 15.0% TSP	0.68	< 0.1
+ 20.0% TSP	0.43	< 0.1
+ 10.0% Phosphoric acid	1.2	< 0.1
+ 15.0% Phosphoric acid	4.0	< 0.1
+ 5.0% Magnesium oxide + 5% TSP	2.3	0.2
Proposed BDAT (TCLP)	0.14	0.51
EP Toxicity Criteria	1.0	5.0
	EP Water Leach Test Results	
Sample #1		
Untreated	0.0034	0.022
+ 7.5% TSP	0.0003	1.3
+ 20.0% TSP	0.40	< 0.1
+ 10.0% Phosphoric acid	0.026	0.067
+ 7.5% Magnesium oxide	< 0.0003	0.43
+ 5.0% Magnesium oxide + 5% TSP	< 0.005	< 0.1

COMMENT NUMBER: 9-G-11
DOCKET NUMBER: LD12-00104
COMMENTER: THE WHELAND FOUNDRY
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes
RESPONSE:

This commenter has submitted 18 data points on stabilization treatment of cupula emission baghouse dusts. Data from Foundry D of the RMT data submittal represented tests of various binders and binder-to-waste ratios. The untreated waste ranged from 85.1 to 88 mg/l lead EP, and treated values ranged from <0.1 to 1.4 ppm EP. The best data appear to be 20 percent metallic iron, 5 to 10 percent phosphoric acid, >7.5 percent magnesium oxide, and >12.5 percent TSP.

It is unclear whether any of these stabilizing agents perform better than lime/fly ash stabilization, which was determined to be BDAT for K061, a similar waste.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-G-12
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment
Comment: technology for lead wastes

Comment 3: Treatment Standards for D008 Wastes

In the proposed regulations EPA appears to be contending that wastes below 2.5 percent lead content can be stabilized and that wastes above the 2.5 percent lead level can be treated through thermal reclamation. GNB questions the validity of this oversimplified approach to the issue of treatment standards of such wastes.

By way of background, GNB notes that fixation/stabilization methods and efficiencies vary significantly between waste types (i.e., soil, rubber battery case material, auto fluff, secondary lead blast furnace slag, F006 wastes, K046, etc). Additionally, the behavior of a sample undergoing TCLP analysis is very much dependent on the materials matrix. It is thus unlikely that a secondary lead facility can reliably meet a TCLP concentration of 0.51 mg/l on a regular basis given the significant variation in the types of materials that could be covered by the D008 waste category. (While GNB has questioned the applicability of the proposed TCLP to the wastes from its recycling operations, GNB nonetheless comments on TCLP issues, without waiver of its basic position on the TCLP.)

Comment Number: 9-G-12 continued
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead wastes
Subissue: Stabilization as an effective treatment
Comment: technology for lead wastes

In addition, the data that EPA used to support a treatment standard of 0.51 mg/l leachable lead is wholly inadequate for this purpose. EPA has not established that D008 wastes containing low levels of lead can be stabilized with respect to lead. Indeed, the F006 Background Document (at 4-4 to 4-5) indicates that stabilization can actually increase the amount of lead which is leached under the TCLP, or produce a less that 50 percent reduction in the amount of lead leached.[1]

The F006 data EPA relied upon to support the 0.51 mg/l standard is inadequate for another reason. EPA has acknowledged that the presence of inorganic constituents such as sulphide and chloride compounds may deter the stabilization of F006 wastes and thus cause potential leaching problems. EPA has also acknowledged the need to examine these constituents before deciding to establish a D008 treatment standard based on the F006 experience. F006 Background Document at 3-9. It does not appear that EPA has done what it said should be done in this regard.

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[1] U.S. Environmental Protection Agency, Office of Solid Waste, Best Demonstrated Available Technology (BDAT) Background Document for F006. August 1988, Washington, D.C.: EPA/530-SW-88-031L, PB89-142467.

Comment Number: 9-G-12 continued
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

GNB submits that any alternative to the 5.0 mg/l treatment standard should recognize the limitations of the effectiveness of stabilization technology. One appropriate alternative standard would be to allow the disposal of the glass-like slag and matte from battery recycling in an environmentally secure monofill. GNB has in fact developed a detailed legislative proposal to this effect, one that provides ample environmental safeguards and is consistent with existing provisions of RCRA dealing with monofills in analogous contexts, such as in the case of the grant of a capacity variance. GNB has proposed this legislation, not because the law must be changed to permit the disposal of its slag in environmentally secure monofills, but to ensure that this remains an appropriate option.

COMMENT NUMBER: 9-G-12
DOCKET NUMBER: LD12-00202
COMMENTER: GNB. INC.
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represents the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. With the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP and the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency believes the data presented by this commenter show treatment to the level of 5 ppm lead. Additionally, either vitrification or stabilization is an appropriate technology as long as the treated waste meets the 5.0 mg/l EP level.

Comment Number: 9-G-13
Docket Number: LD12-00213
Commenter: Vision-Ease
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment
Comment: technology for lead Wastes

2) According to the proposed rules, since our waste glass is a characteristic waste for lead (Exhibits > 5.0 mg./L. EP leach results), and it contains greater than 2.5% lead, we will be required to send our waste glass solids through a thermal recovery process.

This thermal process will be required to convert our waste solids to a form that will not leach more than the characteristic level of 5.0 mg./L. (Assumedly, some of the lead will be recovered for beneficial reuse.)

Our current solidification process also converts hazardous glass solids into a form that does not leach more than 5.0 mg./L. without the recovery of lead that the thermal process may give. (See attachment #2 - 1989 Treated Solids Log and Waste Analysis Plan) This attachment shows the analytical results from EP extractions for lead and barium for each shipment of treated glass solids waste. The average result for lead was 2.69 mg./l. and for barium was 43.96 mg./l. The solidification process that produced these results is described in attachment #3. (Standard Operating Procedures for mixing glass solids.)

Our concern is that the thermal recovery systems may also produce harmful amounts of lead air emissions in an effort to produce an equally non-hazardous solid as our current solidification process produces.

COMMENT NUMBER: 9-G-13

DOCKET NUMBER: LD12-00213

COMMENTER: VISION-EASE

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency believes the data presented by this commenter show treatment to the level of 5 ppm lead. Additionally, either vitrification or stabilization is an appropriate technology as long as the treated waste meets the characteristic level.

If lead air emissions are produced as a result of the commenter's process, EPA believes they can be controlled by an air pollution control device to permissible levels.

Comment Number: 9-G-14
Docket Number: LD12-00222
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective technology for lead wastes
Comment:

1. Proposed Treatment Standards Inappropriate For Foundries

Foundry waste streams which may be affected by the subject proposal include: a) air pollution control dust/sludges from sand molding and/or metal melting operations; b) spent molding sand from brass/bronze foundries; and c) spent refractory materials such as furnace linings, ladle linings, or crucibles.

Physically these wastes may vary from fine, dry particulate with high iron oxide and coke content (dust from a cupola baghouse) to very coarse refractory materials (spent brick and crucibles from induction melting furnaces). The pH of the waste may be acidic, neutral, or basic depending on the melting/molding practices of the foundry.

This variability in waste stream characteristics is a result of the wide variety of processes and materials that a foundry must use to produce castings to meet their customers' quality and metallurgical requirements. For example, a captive brass foundry (one which produces castings solely for their parent company) may melt only a relatively small number of alloys, whereas a jobbing brass foundry (one which produces castings on a batch basis for a multitude of customers) may melt up to 70-80 different alloys. Since each alloy has its own unique chemistry (e.g., lead may range from 0-25%), the characteristics of the waste generated by a jobbing brass foundry will be more variable than the waste generated by a captive brass foundry.

The same can be said for captive versus jobbing iron and steel foundries. A captive iron foundry producing ductile iron casting for the automotive market must melt an iron with few trace elements (due to the post melting treatment of the molten iron to enhance its ductile properties). These foundries will melt scrap of known chemistries (e.g., pig iron or inhouse scrap) with tight ranges on contaminant levels. On the other hand, a jobbing iron foundry may melt a wide variety of scrap with broader ranges of contaminants since customer demands for chemistry are less stringent (the chemistry of a fork truck counterweight casting is much less important than the chemistry of a turbine blade casting). This variability in the quality of the scrap being melted results in unpredictable values of heavy metals in the wastes.

Comment Number: 9-6-14 continued
Docket Number: LD12-00222
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

Another variable for all foundries is the wide range of melting temperatures (1300°F - 3000°F) used and the effect this has on the type, quantity and chemical (oxidation) state of the metals found in the waste sand, dust and sludges.

As a result of the above factors, treatment data from F006 (electroplating) and K046 (explosive manufacturing) cannot be applied to wastes generated by foundries which may be subject to the proposed rules. F006 and K046 represent waste which are much more homogeneous than foundry wastes. The lead and cadmium content of EP toxic foundry waste varies more than F006 and K046 waste streams used to develop the treatment criteria.

For example, the total lead concentration in the "as received" F006 waste ranged from 11.4 to 409 ppm (the 24,500 ppm lead waste should be ignored since it is so out of line with the remaining F006 wastes), with an average of 118 ppm. (Exhibit LD12-S0352.A). The total lead content of wastes from gray iron foundries range from below detectable limits to 29,630 mg/kg (ppm), with an average of 4331 mg/kg (ppm) (see Attachment 1 to the December 21, 1989 submission to the docket from Michael P. Slattery). The F006 average concentration is based on nine (9) sample waste streams whereas the gray iron foundry average is based on thirty-five (35) waste streams. Similar comparisons for cadmium indicate that the F006 wastes range from 1.3 to 67.3 ppm, with an average of 14 ppm (ignoring a 720 ppm outlier). Gray iron foundry wastes range from below detectable limits to 178.9 mg/kg (ppm), with an average 30 mg/kg (ppm) (ignoring a 1063.7 mg/kg outlier).

Averages and ranges for K046 were not performed, since the data reviewed in the docket is apparently based on only one waste stream sample which was then split to determine treatment effectiveness. This sample contained no cadmium and 976 ppm total lead.

Therefore, a treatment standard for low lead nonwastewater wastes, based on technologies used for F006 and K046, cannot be applied to foundry wastes. This is particularly due to the dissimilarities in physical state and metallic content of those wastes. We request the establishment of a new treatability group and corresponding treatment standard(s) which would apply to foundry wastes.

COMMENT NUMBER: 9-G-14
DOCKET NUMBER: LD12-00222
COMMENTER: AMERICAN FOUNDRYMEN'S SOCIETY, INC.
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes
RESPONSE:

The Agency appreciates the commenter's input. EPA has decided to promulgate a standard for lead nonwastewaters of 5.0 mg/l EP. For nonwastewater forms of lead exhibiting a characteristic toxicity, the Agency suggests treatment by stabilization. The treater is, however, free to choose any acceptable method of treatment (including any acceptable stabilizing agent) to treat characteristic lead wastes to below 5 mg/l EP.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency believes the data presented by this commenter show treatment to the characteristic level of 5 ppm lead. Additionally, either vitrification or stabilization is an appropriate technology as long as the treated waste meets the BDAT standard.

Comment Number: 9-G-15
Docket Number: LD12-00250
Commenter: Private Citizen, Ph.D.
Issue: Lead wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

The treatment standards for metal do not protect the environment sufficiently.

Often, EP Toxic nonwastewaters are disposed in landfills alone or with other solid waste that is not biodegradable to organic acids rather than with organic matter that might generate acids. Both the EP Toxicity test and the TCLP presume co-disposal with biodegradable organics and use acetic acid to model that system. Many times, metal-containing EP Toxic wastes leach very low concentrations of metals in an environment that simulates the leaching environment of the actual landfill (e.g., a water leach test). Treatment may substantially increase the leaching of metals with water.

Some metals, lead for example, are amphoteric. Lead oxide forms Pb^{+2} in acid environments and plumbite ion, $Pb(OH)_3^{-1}$ or $HPbO_2^{-1}$, in strongly basic environments. EPA's BDAT technology for lead is treatment with cement, which is lime based and highly alkaline. In the EP Toxicity test or the TCLP, the alkalinity in the cement can control the acidic-leaching of lead, and the acid used in the test can control the alkaline leaching of lead. However, the lead matrix may be exposed to water leaching by infiltration of rainwater into the landfill. In that case, the lead may be leached from the cement matrix in much greater concentrations than it would be from the untreated waste.

Therefore, disposal of a waste treated with EPA's BDAT may create a greater environmental hazard than disposal of the untreated waste.

COMMENT NUMBER: 9-G-15

DOCKET NUMBER: LD12-00250

COMMENTER: PRIVATE CITIZEN

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency has decided to promulgate a nonwastewater standard for lead (D008) of 5.0 mg/l EP. EPA recognizes that there are a number of highly diverse wastes that can be classified as D008. EPA also realizes that lead is an amphoteric metal and the amphoteric nature may prevent stabilization from achieving levels substantially below 5.0 mg/l EP.

EPA believes that although D008 lead wastes may be codisposed with other materials that could cause the D008 wastes, because of their amphoteric nature, to leach, the treated D008 wastes may not leach above the characteristic level. The commenter has not provided any data to the contrary.

Comment Number: 9-G-16
Docket Number: LD12-00274
Commenter: Collier, Shannon & Scott
Issue: Lead
Subissue: Stab. as Effective Technology for Lead Wastes
Comment:

EPA has also proposed a specific concentration-based treatment standard of: (i) .04 mg/l for D008 (lead) wastewaters based on transferring data from K062 treated by chemical precipitation; and (ii) of 0.51 mg/l for low lead D008 nonwastewaters from transferring data from F006 wastes that has been stabilized. It is totally inappropriate for EPA to set treatment standards for wastes hazardous because of lead toxicity on the basis of treatment levels achieved by K062 because untreated K062 only contains trace quantities of lead. In fact, 5 of the 11 samples of treated K062 on which EPA relies in setting the treatment level for D008 wastewaters contained non-detectable levels of lead before they were treated by chemical precipitation. See Table 4-9 of the Background Document on D008 wastes. Because individual sources of D008 wastes vary widely, many sources will be unable to meet treatment standards otherwise applicable to K062 or F006.

A far better regulatory approach for EPA to adopt would be to set treatment methods, rather than specific concentration levels as treatment standards for characteristic wastes (or at least those characteristic wastes such as D007 and D008 on which there is insufficient data and for which EPA has proposed concentration limits that are impossible for most wastes to meet). EPA correctly notes that section 3004(m) of RCRA provides EPA with the discretion to promulgate land disposal pretreatment standards expressed either as concentration levels or as treatment methods.[3] In fact, EPA has proposed to establish treatment standards expressed as a treatment process, or alternative treatment processes for more than a hundred wastes in proposed section 40 C.F.R. § 268.42.

We generally support the adoption of these alternative methods of treatment. Industry should be provided with a choice of acceptable treatment processes whenever possible to create competition in the treatment industry and to ensure that a single treatment process or company does not become a monopoly with a market created by government mandate.[4] Consequently, we recommend that EPA adopt stabilization or thermal metals recovery as alternative treatment standards for all D007 and D008 nonwastewaters and chemical precipitation for all D007 and D008 wastewaters. Even if the Agency only adopted these measures as an interim final, it would provide the Agency with

Comment Number: 9-G-16 (Cont)
Docket Number: LD12-00274
Commenter: Collier, Shannon & Scott
Issue: Lead
Subissue: Stabilization as Effective Tech for Lead
Comment:

the needed time to adopt valid concentration limits for specific wastes in the future after more data becomes available.

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[3] In the recent decision of Hazardous Waste Treatment Council v. U.S. EPA, 886 F.2d 355, 361 (D.C. Cir. 1989), the Court noted that:

> The statute [RCRA] directs EPA to set treatment standards based upon either "levels or methods" of treatment. Such a mandate makes clear that the choice whether to use "levels" (screening levels) or "methods" (BDAT) lies within the informed discretion of the agency.

[4] Generally, EPA attempts to provide this flexibility and competition by specifying treatment standards expressed as concentrations, thus allowing industry to choose among technologies capable of achieving the desired concentration limits. While this may work for specific waste codes, it does not work for broad categories of characteristic wastes. In this case, EPA should specify an array of treatment methods and allow generators to choose the one most applicable and effective for its own wastes.

COMMENT NUMBER: 9-G-16
DOCKET NUMBER: LD12-00274
COMMENTER: COLLIER, SHANNON, & SCOTT
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes
RESPONSE:

Based on treatment data for lead wastewaters submitted to the Agency during the public comment period, the lead wastewater treatment standard has been revised to the characteristic level of 5.0 mg/l. The data available to EPA on treatment of D008 wastewaters show that treatment to levels of 0.2 to 0.6 mg/l is achievable. These new data represent treatment of wastewaters containing up to 300 mg/l lead. However, the Agency realizes that requiring treatment below the characteristic level for D008 wastewaters may cause enormous disruptions to the NPDES and UIC programs. Therefore, the Agency is promulgating the characteristic level.

The Agency agrees with the commenter that many lead wastes do not contain the concentration of iron found in K062 and that other complexing agents in K062 may interfere with precipitation of lead in wastewaters. Subsequently, EPA has decided to promulgate standards for lead based on D008 data.

Additionally, the Agency has stated in previous rulemaking that it prefers to set a numerical standard rather than a treatment method for wastes whenever possible.

Comment Number: 9-G- 17
Docket Number: LD12-00031
Commenter: Thermal KEM / Cyano KEM
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

The comments of the American Foundrymen's Society (Docket #00046) point out that lime stabilization of foundry sand does not yield treatment to below the characteristic levels. Yet, there are many other less alkaline stabilization agents, such as kiln dust, as well as powerful metal binding agents like sulfide. These were not considered by this commenter. The commenter presents data on an "iron dust treatment technology" that does show compliance with the 0.51 PPM BDAT standard for D008 foundry sands.

RMT, in their comments on foundry waste, argue that foundry cupola emission control wastes are different from F006 sludges, primarily on the basis of particle size, and high iron and zinc content. F006 wastes, however, also have very high levels of iron and zinc. The fine particle size for the foundry wastes should make treatment easier by allowing more complete mixing and contact of the stabilization developed for K061, a very fine steel dust of high iron (26%) and zinc (16%), for which a treatment standard of 0.24 PPM lead was promulgated based on stabilization (half the proposed standard for D008 based F006). There is no reason to expect the performance for foundry dust to be different since the wastes are very similar to K061.

COMMENT NUMBER: 9-G-17

DOCKET NUMBER: LD12-L0031

COMMENTER: THERMALKEM/CYANOKEM

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

This commenter submitted a response to some of the data the Agency received on lead wastes. The Agency agrees with the commenter that in order to develop treatment standards, the Agency should have good QA/QC data, input waste characterization, description of the treatment process to determine whether it is well designed and well operated, and description of factors affecting the process performance. The Agency does not agree totally with the commenter's analysis of the data. The commenter has analyzed the Secondary Lead Smelters Association data and has concluded that the data show treatment levels below 5.0 mg/l EP. The commenter points out the deficiencies of the data submission. On the whole, the Agency agrees with the commenter that the data are deficient in some areas, although the Agency believes that these data represents the stabilization of high-lead waste, i.e., 10 percent. The commenter's data clearly do not come close to showing stabilization of these wastes. The commenter also points out that with some minor optimization, the SLSA could meet the proposed standard. The Agency is not aware what is meant by the minor optimization that SLSA could use to improve their treatment system since SLSA is using binder-to-waste ratios as high as 15 to 1. Also, the SLSA data show that the highest lead standard clearly leached above the characteristic level.

COMMENT NUMBER: 9-G-17 (continued)
DOCKET NUMBER: LD12-L0031
COMMENTER: THERMALKEM/CYANOKEM
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

With respect to the foundry data, the commenter points out that there exist other stabilizing agents that can stabilize the foundry wastes. The commenter has not provided any data that support this statement.

The commenter also reviewed the glass data and concluded that other stabilizing agents may be able to reduce the leachability of lead in the waste. The Agency points out that the glass data used lime and phosphate as a stabilizing agent. There was a submission of 34 data points, and the Agency calculated a treatment standard of 5.0 mg/l EP. The type of waste that was stabilized was grinding and polishing dust and wastewater treatment filter press solids. The total concentration of lead was 2.5 percent. Clearly, these data show the commenter did not attempt to stabilize this type of waste.

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes.

COMMENT NUMBER: 9-G-17 (continued)

DOCKET NUMBER: LD12-L0031

COMMENTER: THERMALKEM/CYANOKEM

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Comment Number: 9-G-18
Docket Number: LD12-L0034
Commenter: HWTC
Issue: Lead
Subissue: Stabilization as Effective Technology for Lead
Comment:

b. Stabilization as BDAT

We are encouraged to see the data submitted by SLSA demonstrating the effectiveness of stabilization for the treatment of D008 lead. However, SLSA inappropriately objects to the establishment of a BDAT limit lower than the characteristic level. Then, undeterred by that position, SLSA proceeds to offer data indicating that BDAT technologies can routinely and easily achieve a lower standard. While the comments are obviously antagonistic to EPA's wisdom in setting BDAT below the characteristic level, the most reasonable interpretation of the sum total of this comment is that the data presented by SLSA support EPA's action confirming the fact that setting BDAT at the characteristic level removes the "B" from BDAT.

The Secondary Lead Smelter Association presents arguments to justify why a tech transfer from F006 is inappropriate. Their arguments are focused only on the lead content of the waste, and they fail to consider the concentration of other metal constituents. Further, they cite the low-lead concentration of the untreated F006 waste, however F006 represents a hydroxide sludge from treatment of electroplating and metal finishing wastewaters. The untreated electroplating wastewaters can have percentage levels of lead present. Finally, a tech transfer from K061 waste might also be appropriate for secondary lead furnace slag. K061 waste contains percentage levels of lead. The factors pointed out by the secondary lead smelters that make furnace slag different from F006 sludge (i.e., physical appearance, particle size, lead content) support K061 as a more appropriate waste of similar properties. Yet the lead BDAT standard for K061 waste is half that (.24 PPM) set for F006. By choosing the F006 standard EPA appears to have been attempting to give the greatest latitude for the diverse physical forms of D008 waste anticipated.

Comment Number: 9-G- 18continued
Docket Number: LD12-L0034
Commenter: HWTC
Issue: Lead
Subissue: Stabilization as an Effective Tech. for Lead
Comment:

d. QA/QC Concerns

The data package submitted by SLSA is deficient with respect to a number of information packages required by EPA in evaluating BDAT. No QA/QC data is provided,and no concentration of metals in the untreated waste is given. No detail is given of the treatment methodology, other than ratios of portland cement binders. It should be noted that in both the F006 and K061 BDAT Background Document, other stabilization agents are used to assure greater pozzoulonic activity, and metals binding. Agents such as fly ash, lime, and sulfide would provide for a higher degree of stabilization and metals treatment than just adding portland cement. Lead is also amphoteric, and no pH data is provided by SLSA to indicate if they optimize the pH of their stabilization.

Even at that, 64 of the 109 data points (or 51% of the data) provided by SLSA indicate compliance with EPA's proposed BDAT standard of .51 PPM lead for D008 non-wastewater. The average for Plant A was only slightly over the proposed standard (.53 vs .51). The average for Plant B was 0.82 PPM excluding two outliers from the 83 data point set. Therefore, with some minor additional optimization, the proposed standard of .51 should be achievable on a routine basis. Even if the data is used to set BDAT, a treatment standard in the range of 2.2 to 3.8 PPM would result even after a variability factor is applied, still at a level well below the characteristic level. The Plant A data would yield a BDAT standard of 2.2, and the Plant B data (excluding the two outliers) would give a BDAT standard of 3.8. This data should not be used to set BDAT, however, because no QA/QC is provided, nor any details given concerning the treatment process to determine if it is well operated. EPA should maintain the BDAT standard at the proposed 0.51 level based on F006 non-wastewaters.

Comment Number: 9-G- [illegible] continued
Docket Number: LD12-L0034
Commenter: HWTC
Issue: Lead
Subissue: Stab. as Effective Technology for Lead
Comment:

3. Comments By Foundry Operators

The comments of the American Foundrymen's Society (Docket #00046) point out that lime stabilization of foundry sand does not yield treatment to below the characteristic levels. Yet, there are many other less alkaline stabilization agents, such as kiln dust, as well as powerful metal binding agents like sulfide. These were not considered by this commenter. The commenter presents data on an "iron dust treatment technology" that does show compliance with the a 0.51 PPM BDAT standard for D008 foundry sands. Apparently, the foundrymen believe that the waste generating process should also be considered best demonstrated available technology. This "innovative" BDAT standard, "BDAT as it may," should be rejected as other stabilization agents are available to treat these wastes.

RMT, in their comments on foundry waste, argue that foundry cupola emission control wastes are different from F006 sludges, primarily on the basis of particle size, and high iron and zinc content. F006 waste, however, also have very high levels of iron and zinc. The fine particle size for the foundry wastes should make treatment easier by allowing more complete mixing and contact of the stabilization agents with the metal constituents. This is supported by the BDAT standards developed for K061, a very fine steel dust of high iron (26%) and zinc (16%), for which a treatment standard of 0.24 PPM lead was promulgated based on stabilization (half the proposed standard for D008 based on F006). There is no reason to expect the performance for foundry dust to be different since the wastes are very similar to K061.

Our points made above regarding D008 waste water and non-waste water BDAT standards are also relevant to the comments provided by the Steel Manufacturer's Association, the Lead Industries Association, Exide Corporation and Schuylkill Metals Corporation.

Comment Number: 9-G- continued
Docket Number: LD12-L0034
Commenter: HWTC
Issue: Lead
Subissue: Stab. as Effective Technology for Lead
Comment:

4. Comments Of Glass Manufacturers

The comments of Vision-Ease also show that D008 waste glass solids can be treated to below the characteristic level of 5.0 PPM. They have problems achieving the .51 PPM proposed standard for D008 with their current solidification technology. Vision- Ease's current solidification process relies only upon lime stabilization. Other stabilizing agents, like sulfide, would yield better results. In addition, lead is amphoteric, and the amount of lime added for stabilization should be optimized with respect to pH and lead leachability. Other stabilizing agents, like kiln dust, would be less alkaline and might provide lower leachability.

Comment Number: 9-G- continued
Docket Number: LD12-L0034
Commenter: HWTC
Issue: Lead
Subissue: Stab. as Effective Technology for Lead
Comment:

The Glass Packaging Institute (GPI) (Docket #00078) argues against the proposed standard for D008, but does not give any data to support that stabilization to the 0.51 standard is not achievable. No stabilization data whatsoever is provided for the flue slag waste discussed in their submittal. Their comments therefore, do not provide any technical justification for challenging the proposed 0.51 BDAT standard for lead.

COMMENT NUMBER: 9-G-18
DOCKET NUMBER: LD12-L0034
COMMENTER: HWTC
ISSUE: Lead Wastes
SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency believes that data provided by the American Foundrymen's Society clearly show treatment below the characteristic level for lead, although the performance of the treatment system does not show achievability for cadmium wastes. The Agency believes that this is a clear example of how other metals may affect the performance of a treatment system. Also, these data show clearly the diversity of characteristic waste.

Comment Number: 9-G-19
Docket Number: LD12-00067
Commenter: HWTC
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment
Comment: technology for lead wastes

a. Wastes containing arsenic, selenium, thallium, barium, mercury, nickel, lead, chromium, can be stabilized using currently available technology.

j. Wastes containing as much as 4.91% lead can be effectively stabilized. The proposed cutoff of 2.5% (i.e. wastes containing lead in excess of 2.5% must be treated by metals recovery) should be eliminated. Stabilization data on pure product for arsenic, selenium and thallium can be inferred to demonstrate that very high levels of metallic constituents can be stabilized. A numerical BDAT standard based upon stabilization should be established for lead. No upper limit should be set on stabilization until EPA determines the minimum level at which lead can be recovered.

COMMENT NUMBER: 9-G-19

DOCKET NUMBER: LD12-00067

COMMENTER: HWTC

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

Many commenters suggested that the Agency not promulgate the cutoff level of 2.5 percent total lead for high- and low-lead wastes. Data have been presented that indicate that D008 nonwastewaters greater than 2.5 percent total lead can be stabilized to below the characteristic level. Therefore, the Agency has decided not to promulgate the cutoff level or to promulgate standards based on proposed high- and low-lead treatability groups for D008 nonwastewaters. The Agency has decided that nonwastewaters forms of lead must be treated to 5.0 mg/l EP regardless of the percentage of total lead in these wastes.

The Agency does not agree that the available data support a treatment standard for D008 nonwastewaters below the characteristic level. For a response to the commenter's critique of the submitted data, refer to the preamble in today's rule.

Comment Number: 9-G-20
Docket Number: LD12-00042
Commenter: American Foundrymen's Society
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes.
Comment:

Dissimilarity In Wastes

Technology for electroplating wastewater treatment sludges (F006) and explosives manufacturing (K046) sets the treatment standard for the Low Lead Subcateogry. These waste streams, F006 and K046 are so unlike those generated by foundries and ingot manufacturers that treatment data from F006 and K046 cannot and should not be used to set treatment standards for the foundry and ingot industries. When stabilization technology is utilized, EP and TCLP levels are not consistently near or below the proposed treatment standards for nonwastewater waste containing lead or cadmium (attachments 3, 4 and 5). See separate submission dated Dec. 21 from the American Foundrymen's Society by G. Mosher. See also the data submitted in connection with development of the effluent limitations guidelines. We hereby incorporate by reference as if fully set forth herein all documents described in "Section XV Availability of Technical Information" of "Final Regulation, Metal Molding and Casting Industry Point Source Category Effluent Limitation Guidelines, Pretreatment Standards and New Source Performance Standards, Environmental Protection Agency," Federal Register 50, No. 210, Pages 45212-45273.

COMMENT NUMBER: 9-G-20

DOCKET NUMBER: LD12-00042

COMMENTER: AMERICAN FOUNDRYMEN'S SOCIETY

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represents the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

The Agency believes the data presented by this commenter show treatment to the level of 5 ppm lead. Additionally, either vitrification or stabilization is an appropriate technology as long as the treated waste meets the BDAT standard.

The Agency thanks the commenter for the input. EPA has decided to promulgate a standard for lead nonwastewaters of 5.0 mg/l EP. For nonwastewater forms of lead exhibiting a characteristic toxicity, the Agency suggests treatment by stabilization. The treater is, however, free to choose any acceptable method of treatment (including any acceptable stabilizing agent) to treat characteristic lead wastes to below 5 mg/l EP.

Comment Number: 9-G-21
Docket Number: LD12-00213
Commenter: Vision Ease
Issue: Lead Wastes
Subissue: Stabilization as an effective treatment technology for lead wastes
Comment:

2) According to the proposed rules, since our waste glass is a characteristic waste for lead (Exhibits > 5.0 mg./L. EP leach results), and it contains greater than 2.5% lead, we will be required to send our waste glass solids through a thermal recovery process.

This thermal process will be required to convert our waste solids to a form that will not leach more than the characteristic level of 5.0 mg./L. (Assumedly, some of the lead will be recovered for beneficial reuse.)

Our current solidification process also converts hazardous glass solids into a form that does not leach more than 5.0 mg./L. without the recovery of lead that the thermal process may give. (See attachment #2 - 1989 Treated Solids Log and Waste Analysis Plan) This attachment shows the analytical results from EP extractions for lead and barium for each shipment of treated glass solids waste. The average result for lead was 2.69 mg./l. and for barium was 43.96 mg./l. The solidification process that produced these results is described in attachment #3. (Standard Operating Procedures for mixing glass solids.)

Our concern is that the thermal recovery systems may also produce harmful amounts of lead air emissions in an effort to produce an equally non-hazardous solid as our current solidification process produces.

COMMENT NUMBER: 9-G-21

DOCKET NUMBER: LD12-00213

COMMENTER: VISION-EASE

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

The Agency believes the data presented by this commenter show treatment to the level of 5 ppm lead. Additionally, either vitrification or stabilization is an appropriate technology as long as the treated waste meets the BDAT standard.

If lead air emissions are produced as a result of the commenter's process, EPA believes they can be controlled by an air pollution control device to permissible levels.

Comment Number: 9-G-22
Docket Number: LD12-L0161
Commenter: ARTBA
Issue: Lead
Subissue: Stabilization as an Effective Technology for Lead
Comment:

2. Variance from the Treatment Standards

The SSPC contends that the waste generated by abrasive blast cleaning is substantially different from electroplating sludge waste, on which the proposed treatment standards were based. The abrasive waste is a solid aggregate or steel grit type waste, which requires special techniques for containing, collecting, and conveying to potential processing facilities. In addition, the great number and diversity of the waste generation sites results in the need for an entirely different type of containment and processing facility. Moreover, the EPA has not demonstrated that the processing methodology utilized for the electroplating waste would be capable of handling the huge volume of waste debris generated from abrasive blast cleaning operations.

COMMENT NUMBER: 9-G-22

DOCKET NUMBER: LD12-L0161

COMMENTER: ARTBA

ISSUE: Lead Wastes

SUBISSUE: Stabilization as an effective technology for lead wastes

RESPONSE:

EPA acknowledges that there are a number of different wastes that can be classified as D008 and is consequently promulgating a standard for D008 of 5.0 mg/l EP. Although the commenter states that his facility's D008 wastes cannot meet the characteristic level for lead, he has not provided any data to confirm this. EPA does have data, however, from a number of different commenters treating a variety of D008 wastes. These data show conclusively that the 5.0 mg/l EP standard can be achieved. If this commenter has problems meeting the BDAT standard, the Agency is willing to consider a variance petition.

Comment Number: 9-H-1
Docket Number: LD12-00136
Commenter: CIBA-GEIGY
Issue: LEAD WASTES
Subissue: Application of recovery to D008 high-level non-wastewaters
Comment:

1. High Lead D008 Wastes Not Amenable to Thermal Recovery

EPA has proposed recovery for D008 non-wastewaters containing 2.5 percent or more lead. This is based on the fact that "The Agency has identified some particular D008 wastes which appear to have good recovery potential, such as lead acid batteries, lead dross and electric arc furnace dust" (54 FR 48439).

However, not all D008 high lead wastes are amenable to recovery. For example, one of CIBA-GEIGY's facilities produces glass enamels. In glass enamel manufacturing, the glass frit and pigment raw materials are oxides of lead, cadmium, and chromium, as well as various other metals depending on the specific colors required. Equipment and container washing during the manufacturing process produces wastewater treatment sludge. Work area ventilation produces a mixed product dust waste. Off-specification and obsolete product wastes are also RCRA hazardous wastes when disposed. Most of these wastes contain more than 2.5 percent lead.

A concerted effort has been made to locate a metal recovery facility for these wastes. Unfortunately, no commercial facility could be found. These wastes are not amenable to recovery because of their mixed metal oxide content and the crystalline structure of the encapsulating glass matrix.

COMMENT NUMBER: 9-H-1
DOCKET NUMBER: LD12-00136
COMMENTER: CIBA-GEIGY
ISSUE: Lead Wastes
SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters
RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. The revised treatment standard for D008 nonwastewaters is based on recovery and/or stabilization. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-2
Docket Number: LD12-00158
Commenter: NATIONAL PAINT AND COATINGS ASSOCIATION, INC.
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

The agency is also proposing a treatment standard of "Thermal Recovery as a Method of Treatment" for wastes in the high lead subcategory. The Agency has defined the high lead subcategory as those wastes containing greater than or equal to 2.5% lead. NPCA questions whether it is reasonable to require such waste management practices given current recovery capacities and the undocumented feasibility. As the Agency stresses these treatment standards were proposed with a very limited amount of treatment data in order to meet a statutory deadline of May 8, 1990. NPCA suggests that further data be analyzed and the standards refined according to this data in order to develop realistic treatment standards.

COMMENT NUMBER: 9-H-2
DOCKET NUMBER: LD12-00158
COMMENTER: NATIONAL PAINT AND COATINGS ASSOCIATION, INC.
ISSUE: Lead Wastes
SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. The revised treatment standard for D008 nonwastewaters is based on recovery and/or stabilization. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-3
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead Wastes
Subissue: Application of recovery to D008 high-level non wastewaters
Comment:

4. High Thermal Recovery BDAT

For nonwastewater forms of D008 waste that contain 2.5% or more of total lead, EPA has proposed a BDAT treatment standard of "high thermal recovery." While the SLSA generally supports efforts to encourage the recovery of lead from lead-bearing materials, EPA's proposed treatment standard fails to take into account the technical and economic feasibility of recovering lead from materials with relatively low percentages of lead.

a. Data Base for High Thermal Recovery BDAT

The transfer of the electric arc furnace dust (K061) thermal recovery BDAT to establish a BDAT for D008 waste is inappropriate. Specifically, the physical and chemical characteristics of blast slag and other furnace residues generated by the lead recycling industry do not resemble K061 wastes. EPA stated in the preamble to the proposed rulemaking that "the Agency has data that indicate that wastes containing concentrations of lead as low as 5% can be recovered." 54 Fed. Reg. at 48438. No correlation, however, exists between this K061 data and the slag or other furnace residues from the lead recycling industry. Furthermore, no existing operations or known technologies are capable of consistently removing the lead content of slag.

Comment Number: 9-H-3 continued
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead Wastes
Subissue: Application of recovery to D008 high-level non wastewaters
Comment:

The BDAT Background Document for K061 wastes indicates that prior to thermal recovery, K061 typically contains 12 to 32% zinc. These levels are radically higher than secondary lead slag which typically contains less than 0.5% zinc. The large quantity of zinc in K061 wastes can significantly influence the thermal recovery process. Recognizing this fact, the Agency chose a minimum zinc concentration of 15% for demonstration that K061 can be thermally recovered. (See K061 Background Document p. 03 - 3).

K061 is primarily comprised of metal oxides, while slag principally contains large quantities of sulfur and silicate compounds. This difference can also greatly alter the thermal recovery process and results because lead can be extracted more readily from matrices of metal oxides than from matrices of sulfur and silicate compounds. EPA states that for K061 wastes, the calcium to silica ("Ca to Si") ratio must be maintained for the most effective treatment. The Ca to Si ratios for K061 wastes are reported to range from 3.33 to 9.84. Slag and other furnace residues from the lead recycling industry normally have Ca to Si ratios well below 1.0.

Thermal operational experiences in the lead recycling industry strongly indicate that their waste products cannot be consistently processed to the 2.5% lead concentration or to consistently pass the TCLP or EP toxicity tests. Therefore, the proposed BDAT of 0.51 mg/l for D008 wastes cannot be consistently attained using thermal treatment.

COMMENT NUMBER: 9-H-3
DOCKET NUMBER: LD12-00161
COMMENTER: ANDREWS AND KURTH
ISSUE: Lead Wastes
SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

K061 data were not the "sole basis" for the proposal of a high temperature metals recovery standard for D008 wastes in the high-lead subcategory. EPA also identified lead-acid batteries, lead dross, and other lead-containing materials that are routinely recovered by secondary lead smelters. EPA used the fact that a waste containing 14 percent lead (K061) can be treated to recover lead and generate a residual that does not leach lead at greater than the characteristic level as justification for proposal of "high temperature metals recovery" as a method of treatment.

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for recoverable lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. All wastes or treatment residuals from recovery processes that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-4
Docket Number: LD12-00184
Commenter: LUBRIZOL CORPORATION
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

IV. EPA's Proposed Treatment Standard For "High Lead" D008 Wastes Is Not Available For All Such Wastes And A Stabilization Standard Should Replace EPA's Proposed Treatment Standard.

As part of its operations, Lubrizol generates a D008 waste which contains more than 2.5% lead. For this "high lead" waste, EPA has proposed to promulgate a treatment standard of "Thermal Recovery as a Method of Treatment." Lubrizol is concerned that EPA has proposed this treatment method without taking into account (i) the various unique forms of D008 waste potentially subject to the treatment requirement and (ii) the availability of thermal recovery facilities for such a variety of wastes. In the preamble, EPA states as the sole basis for this proposed standard "data available to the Agency [which] indicates that lead can be recovered from electric arc furnace dust (K061) by high temperature metals recovery." 54 Fed. Reg. at 48439. It is unreasonable to use data concerning a single type of waste as the basis for a required BDAT methodology potentially applicable to a large number of different types of waste. This is readily apparent with respect to Lubrizol's D008 wastes. Lubrizol is not aware of any currently available thermal recovery facility which could treat its lead-containing waste as would be required under the proposed rule. Moreover, Lubrizol has no information which would indicate that thermal recovery technology can be used on the type of "high lead" D008 waste it generates.

Comment Number: 9-1-1-4 continued
Docket Number: LD12-00184
Commenter: LUBRIZOL CORPORATION
Issue: Lead wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

EPA has already recognized the benefit of stabilization as it relates to metal-containing wastes. Lubrizol believes that a stabilization-based treatment standard would be more appropriate for the "high lead" D008 wastes.

COMMENT NUMBER: 9-H-4

DOCKET NUMBER: LD12-00184

COMMENTER: LUBRIZOL CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

K061 data were not the "sole basis" for the proposal of a high temperature metals recovery standard for D008 wastes in the high-lead subcategory. EPA also identified lead-acid batteries, lead dross, and other lead-containing materials that are routinely recovered by secondary lead smelters. EPA used the fact that a waste containing 14 percent lead (K061) can be treated to recover lead and generate a residual that does not leach lead at greater than the characteristic level as justification for proposal of "high temperature metals recovery" as a method of treatment.

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for recoverable lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. Wastes or treatment residuals from recovery processes that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-5
Docket Number: LD12-00257
Commenter: GOODYEAR TIRE & RUBBER CO.
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

The Goodyear Tire & Rubber Company (Goodyear) wishes to comment concerning the subject Proposed Rules contained in the November 22, 1989 Federal Register. Specifically, our comments deal with the "Treatment standards expressed as specified technologies" to be added to 40 CFR 268.42 (a)(7), as they relate to the high lead subcategory. The pertinent discussion in the preamble is found at 54 FR 48437 to 48440.

Goodyear manufactures a variety of rubber products formed from compound mixes, some of which contain lead, which is added chiefly in its insoluble salt form, in proportions exceeding 2.5% of the total mix. We are concerned that EPA has chosen to prescribe a BDAT treatment standard for high lead nonwastewaters, which apparently would include waste rubber compounds or mixes. By the Agency's admission, the 2.5% cutoff level was "proposed based on a limited amount of data from both recycling and stabilization of wastes containing lead". Also, we assert that rubber mixes are not among the "particular D008 wastes which appear to have good recovery potential, such as lead acid batteries, lead dross, and electric arc furnace dust." (page 48439)

Goodyear believes the treatment standards as proposed for high lead nonwastewaters are not appropriate for waste rubber compounds. We have no indication, and do not believe the Agency does, that thermal recovery is applicable to such wastes.

Therefore, we respectfully propose that specific treatment technologies be prescribed for specific wastes. Those technologies must be technically achievable as well as protective of the environment. If no technically feasible method is available to thermally recover or stabilize lead from a particular type of waste, then we suggest a numerical standard should be applied to that waste. In the case of waste rubber compounds, Goodyear would welcome the opportunity to assist the Agency in the development of such numerical standards.

COMMENT NUMBER: 9-H-5

DOCKET NUMBER: LD12-00257

COMMENTER: GOODYEAR TIRE AND RUBBER COMPANY

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for recoverable lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. Wastes or treatment residuals from recovery processes that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-6
Docket Number: LD12-L0009
Commenter: KOHLER Co.
Issue: Lead wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

WASTE ENAMEL IS NOT SUITABLE FOR THERMAL RECOVERY

Kohler generates a D008 waste stream that would be affected by the proposed regulations. This waste stream is referred to as "Waste Enamel" and contains about 13 % lead and large amounts of silica compounds. It is treated to render the waste non-hazardous in an on-site interim status treatment unit.

The proposed regulation would require thermal treatment of waste enamel to recover lead. Thermal recovery is not appropriate for waste enamel. If waste enamel was thermally processed to recover lead, most of the material would end up in the waste products of the recovery process, and very little of the lead would be recovered.

(Thermal recovery of lead from D008 wastes is normally conducted by secondary lead smelters. The principal waste product from thermal recovery in secondary lead smelters is referred to as slag, and contains 2 to 8 % lead and almost all of the silica compounds from the feed stock. If waste enamel was processed to recover lead, the volume of slag generated would increase and most or all of the lead from the waste enamel would be interspersed in the slag silica matrix.)

COMMENT NUMBER: 9-H-6

DOCKET NUMBER: LD12-L0009

COMMENTER: KOHLER COMPANY

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for recoverable lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. Wastes or treatment residuals from recovery processes that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-7
Docket Number: LD12-L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Applicability of recovery to D008 high-lead non wastewaters
Comment:

D008 Characteristic Hazardous Waste

The proposed Third Third Land Disposal Restriction regulations (published November 22, 1989) set two categories of treatment standards based on the total lead content of D008 (E.P. Toxic lead) hazardous wastes. For wastes containing a total lead concentration of 2.5 percent and less (Low Lead Subcategory), a treatment standard of 0.51 mg/l must be achieved. For wastes containing a total lead concentration of greater that 2.5 percent (High Lead Subcategory), a treatment standard of "Thermal Recovery as a Method of Treatment" is proposed.

The Amoco Whiting Refinery currently has a Bender treating process (licensed by Petrolite) that "sweetens" jet fuel and heater oil distillate product by converting mercaptan sulfur to disulfides. This process uses a Bender catalyst which is slag impregnated with approximately 7-10% lead oxide. The spent catalyst ranges in total lead concentrations of 1.7 - 5.8 percent. According to Petrolite, thermal recovery of lead from the spent Bender catalyst is not currently feasible; the Bender catalyst differs significantly from lead acid batteries, lead dross, and electric arc furnace dust on which the treatment standard was based. Other processes, such as Merox sweetening, have been investigated to attempt to replace the lead catalyst process. However, no other "sweetening" process has been found which is capable of producing a jet fuel within Amoco, customer, and legal specifications.

Attachment I contains the additional information collected by Amoco on the management options for Bender spent catalyst. Petrolite assisted Amoco in attempting to identify an option for meeting the proposed standard for the spent catalyst. Documentation from Petrolite, which explains the infeasibility of regeneration or recycling the spent catalyst by thermal recovery, is provided in Attachment I. Also in Attachment I is a table listing Total and E.P. Toxic lead concentrations of the spent catalyst. Finally, results of a treatability study are presented which show that the leachable lead can be stabilized to meet the proposed treatment standard (0.51 mg/l) for the Low Lead D008 subcategory.

Comment Number: 9-H-7 continued
Docket Number: LD12-L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

Amoco hereby requests that EPA provide the option of meeting the treatment standard of 0.51 mg/l for wastes which exceed the 2.5 total lead percent based on the following:

1. The spent Bender catalyst differs significantly from the wastes on which the treatment standards were based.
2. No thermal recovery options seem to exist for this waste material.
3. Stabilization of the spent catalyst has shown to successfully meet the proposed treatment standard of 0.51 mg/l (for Low Lead Subcategory).
4. No other sweetening process has been found to be capable of treating jet fuels and heater oils produced at the Whiting Refinery.

Meeting the proposed treatment standard of 0.51 mg/l may be more stringent than meeting the standard of thermal recovery since no treatment limit must be met under the latter standard (the treatment residue may be significantly above the 0.51 mg/l level). Therefore, Amoco believes that allowing the option for stabilization or thermal recovery for wastes exceeding the 2.5 percent total lead concentration, will be more protective of human health and environment.

Comment Number: 9-H-7 continued
Docket Number: LD12-L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

Attachment I

Additional Information on

D008 Wastes

Contents:

Page 1 - Documentation of treatment infeasibility to meet High Lead D008 subcategory standards

Page 2 - Total and EP Toxic concentrations of lead in the spent catalyst

Pages 3-10 - Documentation of treatment feasibility to meet Low Lead D008 subcategory standards

Comment Number: 9-H-7 continued

Docket Number: LD12-L0020

Commenter: Amoco Corporation

Issue: Lead Wastes

Subissue: Application of recovery to D008 high level non wastewaters

Comment:

Petrolite Corporation
369 Marshall Avenue
St. Louis, Missouri 63119
314/968-6053 • FAX: 314/968-6104

T. J. Robichaux
Director of Environmental Affairs

2 February 1990

Ms. C. M. Muraoka
AMOCO OIL COMPANY
P.O. Box 710 Mail Code 242
Whiting, IN 46394

Dear Ms. Muraoka:

In your letter of January 19 you requested information from Petrolite on the feasibility of recycling lead from Bender catalyst by "thermal recovery." As you know, Petrolite has reasons for concern with the treatment of lead wastes as proposed in the "Land Disposal Restrictions For Third Schedule Wastes." The effect of the rule on Bender catalyst residues and spent catalyst could be significant.

Bender catalyst wastes are classified as EP Toxic (D008) as a result of extraction of lead. The wastes may sometimes contain more than 2.5 percent lead, thereby mandating thermal recovery under the proposed rule. To date we have not identified a facility which can handle hazardous wastes and thermally recover lead from the matrix of Bender catalyst.

Our contacts with a lead processor and with hazardous waste operators, lead us to believe that thermal recovery of lead from Bender catalyst may require a significantly different process from the one evaluated by EPA. Petrolite believes that the composition of Bender catalyst, which contains lead oxide cemented to a metal slag base, will not produce recyclable lead when subjected to thermal recovery as proposed by the Agency. Thus far, attempts to reach persons in EPA to discuss the matter have been unsuccessful. Meanwhile, discussion of stabilization of Bender catalyst wastes with Rollins Environmental Services indicates that such a process could be successful. We have not yet tested this process.

I hope that the above information is helpful to you. Petrolite intends to continue work on this matter and, hopefully, can be of some assistance to Amoco in the near future.

Sincerely,

TJR/sb
cc: R.J. Seidel
Amoco.ltr

Comment Number: 9-H-7 continued

Docket Number: LD12 - L0020

Commenter: Amoco Corporation

Issue: Lead Wastes

Subissue: Application of recovery to D008 high level non-wastewaters

Comment:

Table I
Bender Catalyst Analyses
Total Lead and E.P. Toxic Lead

Sample No	Total Lead (mg/kg)	EPToxic Lead (mg/l)
Sample #1	58442	485
Sample #2	17100	88
Sample #3	25867	464

Table II
Bender Catalyst Treatability Results
TCLP Lead

Sample Size	Raw Sample (mg/l)	Treated Sample (mg/l)
425-850 microns	327	0.08
850 microns	327	0.09

Comment Number: 9-H-7 continued
Docket Number: LD12- L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non- wastewaters
Comment:

FINAL LABORATORY REPORT

ISSUED TO:

AMOCO OIL COMPANY
Whiting Refinery
2815 Indiana Boulevard
Whiting, Indiana 46394

Attention: Ms. Claire Muraoka

January 31, 1989

Prepared by:

CHEMFIX TECHNOLOGIES, INC.
Metairie Centre, Suite 620
2424 Edenborn Avenue
Metairie, Louisiana 70001

Comment Number: 9-H-7 continued
Docket Number: LD12- L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

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Comment Number: 9-H-7 continued
Docket Number: LD12 - L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

ATTACHMENT A

Laboratory Summary

Chemfix Technologies, Inc. (CTI) has completed testing of the two waste samples Amoco Oil Company sent to CTI's wholly owned analytical laboratory, Environmental Industrial Research Associates, Inc. (EIRA). The samples were labeled "Spent Bender Catalyst" and "Treating Clay". The constituent of concern in both samples is lead.

The paint can labeled Spend Bender Catalyst contained hard, dark grey rock-like material ranging in size from 2-10 mm. CTI attempted to grind this material down to a suitable particle size for treatment. Unfortunately, due to the nature of the material, it could not be ground with available laboratory equipment. CTI sent the sample to BTC Engineering in Ventura, California.BTC ground the sample into the size of a fine sand (i.e., <850 microns - >425 microns) and into the size of a medium sand (i.e., <2 mm - >850 microns). The purpose was to find a particle size as large as possible that could still be treated.

Comment Number: 9-H-7 continued
Docket Number: LD12-L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non-wastewaters
Comment:

The Toxicity Characteristic Leaching Procedure (TCLP) was performed on the raw spent bender catalyst waste and showed a lead leachate concentration of 327 mg/l. After the samples were ground, they underwent chemical fixation with the CHEMFIX® process. The TCLP results on the CHEMFIX® product using the waste that was ground into the size of a find sand showed a lead leachate concentration of 0.08 mg/l. The CHEMFIX® product using the waste that was ground into the size of a medium sand displayed a lead leachate concentration of 0.09 mg/l.

The second paint can labeled "Treating Clay" contained a fine grain, black sandy material with a strong petroleum odor. The TCLP was performed on the raw waste and showed a lead leachate concentration of 86.6 mg/l. After chemical fixation the lead leachate concentration in the CHEMFIX® product was reduced to 0.09 mg/l.

Comment Number: 9-H-7 continued
Docket Number: LD12- L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non-wastewaters
Comment:

ATTACHMENT B

Test Results

The following two pages include laboratory results after laboratory testing of two raw waste samples. The samples were identified by the laboratory as ANI-1 and ANI-2.

ANI-1 = Spent Bender Catalyst

ANI-2 = Treating Clay

Comment Number: 9-H-7 continued

Docket Number: LD12- L0020

Commenter: Amoco Corporation

Issue: Lead Wastes

Subissue: Application of recovery to D008 high level non wastewaters

Comment:

AMOCO OIL COMPANY
Whiting, Indiana

FINAL LABORATORY RESULTS

January 31, 1989

SAMPLE ANI-1

	RAW WASTE	CHEMFIX PRODUCT	
	TCLP Leachate	TCLP Leachate	
		Fine Grain Size	Medium Grain Size
LEAD	327	0.08	0.09

SAMPLE ANI-2

	RAW WASTE	CHEMFIX PRODUCT
	TCLP Leachate	TCLP Leachate
LEAD	86.6	0.09

TCLP metals concentraion in mg/l

Comment Number: 9-H-7 continued
Docket Number: LD12- L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

AMOCO OIL COMPANY
Whiting, Indiana

FINAL LABORATORY RESULTS

January 31, 1989

PHYSICAL CHARACTERISTICS

SAMPLE OF ANII- Particle size of fine grain sand			
Raw Waste			CHEMFIX Product
pH	Density	% Solids	Pocket Penetrometer Reading after 24 hours
9.7 s.u.	1.51 g/ml	99.2	>4.5 tons/ft2

SAMPLE OF ANII- Particle size of medium grain sand			
Raw Waste			CHEMFIX Product
pH	Density	% Solids	Pocket Penetrometer Reading after 24 hours
9.6 s.u.	1.52 g/ml	99.4	>4.5 tons/ft2

SAMPLE ANIII			
Raw Waste			CHEMFIX Product
pH	Density	% Solids	Pocket Penetrometer Reading after 24 hours
7.4 s.u.	0.96 g/ml	68.1	>4.5 tons/ft2

Comment Number: 9-H-7 continued
Docket Number: LD12-L0020
Commenter: Amoco Corporation
Issue: Lead Wastes
Subissue: Application of recovery to D008 high level non wastewaters
Comment:

ATTACHMENT C

Conclusion

The CHEMFIX® process has shown to be a viable chemical fixation process to treat and stabilize lead in both waste samples provided to CTI. CTI was able to reduce the leachate concentration of the Spent Bender Catalyst from 327 mg/l in the raw waste to 0.08 mg/l in the CHEMFIX® product (using the smaller grain size). The leachate concentration in the raw treating clay was determined to be 86.6 mg/l and was reduced to 0.09 in the CHEMFIX® product. The treatability goal for this program was to reduce the leachable lead concentration below 100 x HBS (i.e., decharacterization). The results prove that the CHEMFIX® process is effective in reducing the leachable lead below 6.2 X HBS (i.e., delisting levels) for both waste types

COMMENT NUMBER: 9-H-7

DOCKET NUMBER: LD12-L0020

COMMENTER: AMOCO CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA is promulgating not to develop a cutoff level for recoverable lead based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitification. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for D008 nonwastewaters is 5 mg/l as measured by the EP procedure.

Comment Number: 9-H-8
Docket Number: L012-00082
Commenter: Schuylkill Metals Corporation
Issue: Lead Wastes
Subissue: Applicability of Recovery to D008 high-lead nonwastewaters
Comment:

The recycling of low lead level materials (less than 40% lead) needs to be encouraged. If the proposed rules for D008 becomes final without change, many, if not all the generators of these low lead level wastes will require variances and these wastes will have to be stabilized rather than recycled.

COMMENT NUMBER: 9-H-8

DOCKET NUMBER: LD12-00082

COMMENTER: SCHUYLKILL METALS CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for recoverable lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-9
Docket Number: L012-00117
Commenter: Exide Corporation
Issue: Lead
Subissue: Applicability of Recovery to D008 High-Lead Nonwastewaters
Comment:

Feasibility of Requiring Secondary Lead Smelting (or Thermal Recovery) for D008 Wastes in the High Lead Subcategory.

The recycling of lead containing materials in industrial furnaces at secondary lead smelters produces a waste (known as blast furnace slag) which is a dense rock-like material consisting primarily of calcium oxide, iron oxides, and/or silica oxides. In addition, the blast furnace slag may contain lead levels in excess of 2.5% and may, at certain facilities, exhibit the characteristics of a hazardous waste based upon EP toxicity for lead.

There are no known feasible methods for the recycling (secondary lead smelting or thermal recovery) of secondary lead blast furnace slag. Recycling, based upon the proposed regulations, would be required by EPA since the total lead content of this waste may exceed 2.5% total lead. Since the recycling of this waste has not been demonstrated to be feasible and there will be no capacity to recycle these materials by May 9, 1990, the proposed regulations would force the closure of secondary lead smelters (an undesirable effect of the proposed regulations since EPA is already mandating the recycling of lead-containing wastes at secondary lead smelters).

Exide Corporation is also concerned that there may be other D008 wastes in the high lead subcategory which are generated by other industries which will be required (by EPA's land disposal prohibitions) to be recycled at secondary lead smelters but may be, in fact, prohibited from being recycled at secondary lead smelters because they are not considered to be "indigenous" wastes to secondary lead smelting operations. Exide Corporation has already provided comments to EPA on this issue, as part of EPA's proposed rulemaking on the burning of hazardous wastes in industrial furnaces.

Given these situations and the fact that national capacity will not be available by May 8, 1990 for the recycling of all lead-containing wastes in the high lead subcategory, Exide Corporation requests that a nationwide capacity variance be granted by EPA for wastes in the high lead subcategory.

Comment Number: 9-H-9
Docket Number: LD12-00117
Commenter: Exide Corporation
Issue: Lead
Subissue: Applicability of Recovery to D008 High-Lead Nonwastewaters
Comment:

EPA Definitions of High and Low Lead Subcategories for D008 Nonwastewater Wastes.

Despite the fact that Exide Corporation owns and operates three secondary lead smelters for the recovery/reclamation of lead containing materials and supports EPA's efforts to promote the recycling of lead-containing materials, Exide is concerned that EPA has overlooked the technical and economic feasibility of recovering lead from materials with relatively low total lead contents (e.g., 2.5% lead). Exide Corporation's secondary lead smelters, in fact, cannot treat/recycle significant volumes of low lead content materials without sacrificing the economic viability of secondary lead smelter furnace operations.

The promulgation of different best demonstrated available technologies (BDAT's) for high lead and low lead subcategories places waste generators in the precarious position of needing to sample and analyze each unit of waste (the procedures for making appropriate determinations are not specified in the proposed regulations) as the waste is generated to determine the appropriate BDAT. The need to analyze each unit of waste would place an additional burden upon the waste generator and would increase storage times prior to off-site disposal. Prolonged storage times increase the likelihood of increased risk to human health and the environment. Also, if the options for handling D008 wastes become too inflexible, the waste generator may be encouraged to resort to improper waste management and disposal practices.

Accordingly, Exide Corporation believes that the differentiation between high lead and low lead BDAT's is unnecessary and that market conditions should mandate which BDAT (e.g., either stabilization or secondary lead smelting/thermal recovery) is appropriate.

COMMENT NUMBER: 9-H-9
DOCKET NUMBER: LD12-00117
COMMENTER: EXIDE CORPORATION
ISSUE: Lead Wastes
SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters
RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for recoverable lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9- H -10
Docket Number: LD12-00130
Commenter: Wayne Disposal, Inc.
Issue: Lead Wastes
Subissue: Applicability of Recovery to D008 high-lead nonwastewaters
Comment:

however the concept of lead recovery from lead wastes containing Pb>2.5% by weight must be proven economically viable by supporting studies which report volumes of candidate waste streams.

COMMENT NUMBER: 9-H-10

DOCKET NUMBER: LD12-00130

COMMENTER: WAYNE DISPOSAL INC.

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for recoverable lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-11
Docket Number: LD12-00174
Commenter: East Penn Manufacturing Co., Inc.
Issue: Lead Wastes
Subissue: Applicability of recovery to D008 high-lead nonwastewaters
Comment:

E. There is Insufficient Technology or Capacity to Treat the Slag and Matte Produced from the Secondary Smelting Process Which Exhibits EP Toxicity for Lead by Either Further Thermal Recovery or Stabilization

East Penn's secondary smelting process currently generates slag and matte which on average contains equal or greater than 2.5% lead, yet it is not technologically feasible to treat this material by further thermal recovery. East Penn, however, is continuing to investigate the possible further thermal treatment of slag and matte in order to further eliminate lead from the waste. To date, two tests have been conducted. Bench scale laboratory tests were conducted to determine the viability of the use of an electric arc furnace. Results indicate that the slag was successfully treated by this process, but the matte produced an unacceptable iron, slag and metal content. East Penn has twice attempted to further treat slag and matte by resmelting the material back through the blast furnace. The results of these tests, while reducing the amount of lead contained in the resultant waste, still had a 9% EP Toxicity failure rate.

COMMENT NUMBER: 9-H-11

DOCKET NUMBER: LD12-00174

COMMENTER: EAST PENN MANUFACTURING COMPANY, INC.

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-12
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Applicability of recovery to D008 high lead non wastewaters
Comment:

GNB also wishes to emphasize that thermal recovery is not the only potential means for recycling lead-acid batteries. The emerging process of electrowinning is showing great promise as a method for recovering elemental lead from spent lead-acid battery mud. This electrochemical process has potential environmental advantages over conventional smelting of certain lead-bearing materials, and is expected to reach operational maturity in the 1990s. But if EPA specifies "thermal recovery" as the only acceptable method of lead-acid battery treatment, the proposed BDAT effectively blocks the development of this innovative and potentially environmentally superior technique.

Comment Number: 9-H-12 continued
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Applicability of recovery to D008 high lead nonwastewaters
Comment:

Where metals recovery is infeasible (due to national capacity or technical limitations), EPA should adopt the proposed alternate BDAT for low lead waste of 5.0 mg/l TCLP lead. In GNB's judgment, the determination as to whether to treat a given waste by recovery or by stabilization must be left to the generator.

COMMENT NUMBER: 9-H-12
DOCKET NUMBER: LD12-00202
COMMENTER: GNB, INC.
ISSUE: Lead Wastes
SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters
RESPONSE:

The Agency has developed a separate treatability grup for inorganic debris for all characteristic metals. Examples of inorganic debris are slag and matte. For these wastes, the Agency has granted a two-year capacity variance.

The Agency agrees with the commenter; therefore, EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for recoverable lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-13
Docket Number: LD12-00213
Commenter: Vision-Ease
Issue: Lead Wastes
Subissue: Applicability of recovery to D008
Comment: high lead non-wastewaters

1) According to the proposed rules, since our waste glass is a characteristic waste for lead (Exhibits > 5.0 mg./L. EP leach results), and it contains greater than 2.5% lead, we will be required to send our waste glass solids through a thermal recovery process.

We have looked at recycle/beneficial uses for our waste glass in the past, but are very concerned about legitimate recycling processes and taking on added liabilities by improper handling of our waste by an outside company.

We have not done capacity studies for thermal recovery of our waste at this point, and do not know if there is a company that can handle our volume of waste. (400 to 500 Tons/year)

We have always handled our wastes responsibly; and are very willing to investigate thermal recovery of our waste, if that process will be beneficial to the environment. However, it is very unlikely that we will be able to seek out, run tests, and set up a for an outside company to thermally recover our glass solids before the May 8, 1990 deadline.

As a result, if we will be required to place our waste into a thermal recovery process, **we request that we be given enough time to adequately make arrangements with an outside company to handle our waste.**

Failure to allow us this time, would result in a huge amount (8 to 10 tons per week) of glass solids that would have to be stored until they could be processed or shutdown of our factory.

COMMENT NUMBER: 9-H-13

DOCKET NUMBER: LD12-00213

COMMENTER: VISION-EASE

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. The revised treatment standard for D008 nonwastewaters is based on recovery and/or stabilization. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-14
Docket Number: LD12-00222
Commenter: American Foundrymen's Society, Inc.
Issue: Lead Wastes
Subissue: Applicability of recovery to D008 high lead nonwastewaters
Comment:

5. Diminished Recycling Of Metallics

As stated earlier, the foundry industry is a major recycler of scrap metal. Iron and steel foundries melt scrap directly, while brass and bronze foundries primarily melt ingots, which ingot manufacturers produce by melting scrap. As an alternative to trying to meet the proposed treatment standards for cadmium and lead, many foundries will change their scrap mix to reduce the lead or cadmium being brought into the process. Since shredded automotive scrap and engine blocks are primary sources of the lead and cadmium contamination, this type of scrap will fall out of favor with foundries. Foundries currently melt approximately 15 million tons of shredded automotive/engine scrap per year, which may not be recycled by our industry in the future.

Since any other manufacturer in the United States which may want to melt this scrap, such as steel mills, will encounter the same cadmium and lead contamination problems, this material will more than likely have to be land filled.

A similar impact will also happen to non-ferrous metals such as brass, bronze and copper scrap containing lead solder. Ingot manufacturers will look to other more expensive materials to make their products.

The proposed treatment standards will have a ripple effect throughout the metal recycling chain. As the demand for the above mentioned scrap drops, so too will its price. As the price drops, so too does the economic incentive to collect and recycle the scrap metal. As the incentive to collect drops, the scrap may go to landfills or blight our nation's countryside.

COMMENT NUMBER: 9-H-14

DOCKET NUMBER: LD12-00222

COMMENTER: AMERICAN FOUNDRYMEN'S SOCIETY, INC.

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-H-15
Docket Number: LD12-00213
Commenter: Vision Ease
Issue: Lead Wastes
Subissue: Applicability of recovery to D008 high lead non-wastewaters
Comment:

1) According to the proposed rules, since our waste glass is a characteristic waste for lead (Exhibits > 5.0 mg./L. EP leach results), and it contains greater than 2.5% lead, we will be required to send our waste glass solids through a thermal recovery process.

We have looked at recycle/beneficial uses for our waste glass in the past, but are very concerned about legitimate recycling processes and taking on added liabilities by improper handling of our waste by an outside company.

We have not done capacity studies for thermal recovery of our waste at this point, and do not know if there is a company that can handle our volume of waste. (400 to 500 Tons/year)

We have always handled our wastes responsibly; and are very willing to investigate thermal recovery of our waste, if that process will be beneficial to the environment. However, it is very unlikely that we will be able to seek out, run tests, and set up a for an outside company to thermally recover our glass solids before the May 8, 1990 deadline.

As a result, if we will be required to place our waste into a thermal recovery process, **we request that we be given enough time to adequately make arrangements with an outside company to handle our waste.**

Failure to allow us this time, would result in a huge amount (8 to 10 tons per week) of glass solids that would have to be stored until they could be processed or shutdown of our factory.

COMMENT NUMBER: 9-H-15

DOCKET NUMBER: LD12-00213

COMMENTER: VISION-EASE

ISSUE: Lead Wastes

SUBISSUE: Applicability of recovery to D008 high-lead nonwastewaters

RESPONSE:

EPA has revised the treatment standard for D008 nonwastewaters based on information received during the public comment period that lead cannot be recovered from all D008 wastes containing greater than 2.5 percent total lead. In fact, the commenters have shown that many slags generated from secondary lead recovery can contain lead at greater than 2.5 percent concentration in a nonrecoverable form. Therefore, the Agency is not promulgating a cutoff level for lead. The revised treatment standard for D008 nonwastewaters is based on stabilization or vitrification. All wastes or treatment residuals from recovery that are D008 wastes must meet the treatment standard of 5 ppm as set forth in the final rule. The treatment standard for each nonwastewater D008 treatability group is specified as an EP leachate lead concentration.

Comment Number: 9-I-1

Docket Number: LD12-00086

Commenter: KAISER ALUMINUM

Issue: LEAD WASTES

Subissue: Proposed cutoff level for recovery

Comment:

The following comments are provided with regard to lead bearing non-wastewaters (D008).

54 FR 48438 - D008 non-wastewaters are split into a high lead and low lead categories at a cut point of 2.5% total lead. EPA points out that it has data which shows that non-wastewaters can be recovered by thermal recovery down to a 5% total lead content. Since the technologies proposed are to be demonstrated, the cutoff should be 5% not 2.5%. At a minimum, EPA should allow non-wastewaters in the 2.5% to 5.0% range to be treated as either high lead or low lead wastes.

COMMENT NUMBER: 9-I-1
DOCKET NUMBER: LD12-00086
COMMENTER: KAISER ALUMINUM
ISSUE: Lead Wastes
SUBISSUE: Proposed cutoff level for recovery
RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent can be stabilized. Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recycled or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

Comment Number: 9-I-2
Docket Number: LD12-00133
Commenter: PPG INDUSTRIES, INC.
Issue: Lead wastes
Subissue: Proposed cutoff level for recovery
Comment:

Likewise, the Agency's proposed 2.5% base for establishment of a "high lead" subcategory is unrealistic and unsupported by the data in the record regarding lead recovery.

COMMENT NUMBER: 9-I-2

DOCKET NUMBER: LD12-00133

COMMENTER: PPG INDUSTRIES, INC.

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent can be stabilized. In addition, this concentration is not an accurate measure in and of itself when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

The Agency disagrees with the commenter that the 2.5 percent cutoff level is unrealistic. At the time of proposal, the Agency had three data sets for treatment of lead. The Agency evaluated the data by comparing the influent concentrations of lead in F006 and K061. The Agency concluded that the highest concentration of lead that was stabilized was less than 2.5 percent. Therefore, the Agency proposed this as a cutoff level.

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Comment Number: 9-I-3
Docket Number: LD12-00143
Commenter: GENERAL MOTORS CORPORATION
Issue: LEAD Wastes
Subissue: Proposed cutoff level for recovery
Comment:

Proposed Treatment Standards for Lead Nonwastewaters

It is also stated on page 48438 that: "The Agency has data that indicate that wastes containing concentrations of lead as low as 5 percent can be recovered." It is further stated that: "This 5 percent level correlates well with the proposed cut-off level of 2.5 percent based on the performance of stabilization." We fail to understand why a 5 percent level correlates with a 2.5 percent level (i.e., half as much).

Comment Number: 9-I-3 continued
Docket Number: LD 12-00143
Commenter: GENERAL MOTORS CORPORATION
Issue: Lead Wastes
Subissue: Proposed cutoff level for recovery
Comment:

Also, it is GM's understanding that lead cannot be recovered economically from a nonwastewater with a total content of 5 percent lead. Further, we question whether EPA has considered the capacity or the willingness of recovery plants to handle wastes with such low lead concentrations. At some price level, such recovery will not be feasible.

COMMENT NUMBER: 9-I-3
DOCKET NUMBER: LD12-00143
COMMENTER: GENERAL NOTORS CORPORATION
ISSUE: Lead Wastes
SUBISSUE: Proposed cutoff level for recovery
RESPONSE:

The Agency agrees with the commenter that it may not be economically feasible to recover lead from wastes containing 2.5 percent lead. In addition, this concentration is not an accurate measure in and of itself when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency is not promulgating the cutoff level and is not adopting the high and low lead subcategories.

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recycled or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

Comment Number: 9-I-4 ✓
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead Wastes
Subissue: Proposed cutoff level for recovery
Comment:

2. Low Lead v. High Lead D008 Wastes

In its proposed land disposal restrictions for D008 wastes, EPA proposed two separate BDATs based on the percentage of total lead in the waste. Nonwastewater forms of D008 wastes that contain less than 2.5% total lead must meet a proposed treatment standard of 0.51 mg/l based on stabilization. For wastes that contain 2.5% or greater total lead, EPA has proposed a BDAT treatment standard of high thermal recovery.

The SLSA believes that the distinction between low lead and high lead BDATs is unnecessary and counterproductive. Generators of D008 wastes should be free to avail themselves of the most appropriate BDAT for any lead-bearing waste, whether it be stabilization, high thermal recovery, or any other available technology. Market forces should dictate which of these environmentally sound BDATs are to be used for any given waste. EPA's proposal based on low lead and high lead subcategories places generators of D008 waste in an impossible situation that could lead to the improper disposal and handling of these wastes.

The promulgation of different BDATs for the low lead and high lead subcategories would impose an unreasonable burden on generators of D008 waste. First, generators would be required to test and to analyze each unit of waste as it was generated in order to determine which BDAT was applicable. Second, EPA has failed to identify any appropriate or acceptable testing procedures to determine the percentage of total lead in a waste. Without such guidance, it is virtually impossible to confirm what is the applicable BDAT. Finally, as discussed above, if the

Comment Number: 9-I-4 continued
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead wastes
Subissue: Proposed cutoff level for recovery
Comment:

regulatory options for handling D008 waste are too inflexible, generators may resort to improper disposal practices, thereby defeating the objectives of the land disposal restrictions. The SLSA proposes that EPA eliminate the distinction between low lead and high lead D008 wastes, give generators the choice among available treatment technologies, and set the BDAT treatment standard at the characteristic level of 5.0 mg/l.

COMMENT NUMBER: 9-I-4

DOCKET NUMBER: LD12-00161

COMMENTER: ANDREWS AND KURTH

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized and not recyclable. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

Comment Number: 9-I-5✓
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead wastes
Subissue: Proposed cutoff level for recovery
Comment:

In fact, EPA has made a leap of faith in setting the threshold percentage at 2.5, because the K061 waste treatment data upon which it relied was limited in scope and was based on the recovery of lead from materials with greater than 5% total lead.

COMMENT NUMBER: 9-I-5
DOCKET NUMBER: LD12-00161
COMMENTER: ANDREWS AND KURTH
ISSUE: Lead Wastes
SUBISSUE: Proposed cutoff level for recovery
RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

K061 data were not the "sole basis" for the proposal of a high temperature metals recovery standard for D008 wastes in the high lead subcategory. EPA also identified lead-acid batteries, lead dross, and other lead-containing materials that are routinely recovered by secondary lead smelters. EPA used the fact that a waste containing 14 percent lead (K061) can be treated to recover lead and generate a residual that does not leach lead at greater than the characteristic level as justification for proposal of "high temperature metals recovery" as a method of treatment. However, this commenter (from the recovery industry itself) and others showed that this situation is not generally true for D008 wastes because the lead concentration is not the sole measure of recyclability.

Comment Number: 9-I-6 √
Docket Number: LD12-00178
Commenter: BATTERY COUNCIL INTERNATIONAL
Issue: Lead Wastes
Subissue: Proposed cutoff level for recovery
Comment:

Finally, BCI supports SLSA's comments which indicate that no distinction should be drawn between low and high concentration lead wastes. Rather, affected facilities should have the flexibility to determine what materials are processed for recovery. Materials to be disposed of otherwise should be treated to a level corresponding to the characteristic level for D008 waste.

COMMENT NUMBER:	9-I-6
DOCKET NUMBER:	LD12-00178
COMMENTER:	BATTERY COUNCIL INTERNATIONAL
ISSUE:	Lead Wastes
SUBISSUE:	Proposed cutoff level for recovery
RESPONSE:	

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

Comment Number: 9-I-7 ✓
Docket Number: L012-00049
Commenter: RMT
Issue: Lead
Subissue: Proposed Cutoff Level for Recovery
Comment:

The differentiation of high lead and low lead wastes could result in difficulties if the lead content of a waste stream fluctuates. Lead content of EP-Toxic foundry wastes can vary greatly, depending on how the waste is generated and on what is being melted. It is impractical to test every sample of waste to determine its lead content, and then decide whether to treat or to recycle. Recycling facilities that we have contacted are not willing to accept wastes with a low metals content. Please note that K061 waste is recycled primarily to reclaim zinc and not lead, and that a waste low in zinc content may not be acceptable for recycling.

COMMENT NUMBER: 9-I-7

DOCKET NUMBER: LD12-00049

COMMENTER: RMT

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

Comment Number: 9-I-8
Docket Number: LD12-00082
Commenter: Schuylkill Metals Corporation
Issue: Lead Wastes
Subissue: Proposed Cutoff Level for recovery
Comment:

There should be no cutoff in lead concentrations for the recycling technology if recycling is to be encouraged.

COMMENT NUMBER: 9-1-8

DOCKET NUMBER: LD12-00082

COMMENTER: SCHUYLKILL METALS CORP.

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

Comment Number: 9-I-9
Docket Number: LD12-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

High Lead Subcategory

EPA's proposal for D008 wastes that contain 2.5 percent or more of total lead specifies "high thermal recovery" as the treatment method. This approach is both lacking in proper support and infeasible because of capacity constraints.

The agency's basis for setting its "high lead" threshold at 2.5 percent is inadequate, as the data on which it relied (recovery of lead from electric arc furnace dust) were based on recovery of lead from materials exceeding 5 percent total lead. EPA has accordingly failed to establish that high thermal recovery is an appropriate BDAT for D008 waste with 2.5 percent or greater total lead.

Comment Number: 9-I-9 continued
Docket Number: LD12-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

LIA also agrees with the SLSA that low and high concentration lead wastes should not be subject to different BDATs. Such a requirement would impose an unreasonable burden on those generating D008 waste. EPA has not identified any accepted or reliable testing procedures to determine the percentage of total lead in a waste, yet lead waste generators would be held responsible for ascertaining this factor for each unit of waste so as to follow the applicable BDAT. Compliance under these conditions is unduly burdensome.

Further, this distinction is unnecessary and unwise. EPA's goal is to reduce lead to acceptable levels, and generators of D008 wastes should be free to employ whichever approved BDAT best accomplishes that result. If market forces are permitted to select which environmentally sound treatment alternative is most appropriate for a particular waste, both environmental objectives and economic efficiencies could be maximized.

COMMENT NUMBER: 9-I-9

DOCKET NUMBER: LD12-00101

COMMENTER: LEAD INDUSTRIES ASSOCIATION

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

In response to the commenter's concerns regarding a reliable test procedure to determine the percentage of total lead, the Agency must point out that a test method does exist for measuring total metals in wastes. Method 7421, which is an approved SW-846 method, analyzes total metals by an atomic absorption furnace technique. From the analysis, one can determine the specific metals within the waste. Also, Method 6010 or Method 7420 can be used to analyze for total lead concentration greater than 2 percent. Therefore, the commenter's statement that a reliable method for analyzing lead in waste does not exist is not true.

Comment Number: 9-I-10
Docket Number: LD12-00103
Commenter: Thomson Consumer Electronics, Inc.
Issue: Lead Wastes
Subissue: Proposed Cuttoff level for recovery
Comment:

Thomson's glass waste contains more than 2.5% lead. For this "high lead" waste, EPA has proposed to promulgate a treatment standard of "Thermal Recovery as a Method of Treatment." Thomson is concerned that EPA has proposed this treatment without taking into account the various unique forms of D008 waste potentially subject to the treatment requirement. In the preamble, EPA states as the sole basis for ~~this pro~~posed standard "data available to the Agency [which] indicates that lead can be recovered from electric arc furnace dust (K061) by high temperature metals recovery." 54 Fed. Reg. at 48439. It is unreasonable to use data concerning a single type of waste as the basis for a required BDAT methodology potentially applicable to a large number of different types of waste. This is readily apparent with respect to Thomson's D008 wastes. Thomson is not aware of any currently available thermal recovery facility which could treat its lead-containing glass waste as would be required under the proposed rule. Moreover, Thomson has no information which would indicate that thermal recovery technology can be used on glass waste such as the type it generates.

COMMENT NUMBER: 9-I-10

DOCKET NUMBER: LD12-00103

COMMENTER: THOMSON CONSUMER ELECTRONICS, INC.

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

[In conclusion, the Agency has decided that nonwastewaters forms of D008 wastes must be treated to 5.0 mg/l EP regardless of the percentage of total lead in these wastes. This commenter's wastes are considered inorganic debris anyway.]

Comment Number: 9-I-11
Docket Number: LD12-00104
Commenter: The Wheland Foundry
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

The differentiation of high lead and low lead wastes could result in difficulties when the lead content of a waste stream fluctuates, making it difficult for Wheland to select treatment or recycling alternatives in any efficient manner. Past samples of Wheland's cupola emission control baghouse dust showed lead contents varying from 0.1 to 2.1 percent lead (dry weight basis). Wheland melts a variety of scrap of differing levels of lead contamination. It is impractical to test every sample of baghouse dust to determine its lead content, and then decide whether to treat or to recycle.

COMMENT NUMBER: 9-I-11
DOCKET NUMBER: LD12-00104
COMMENTER: THE WHELAND FOUNDRY
ISSUE: Lead Wastes
SUBISSUE: Proposed cutoff level for recovery
RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

Comment Number: 9-I-12
Docket Number: LD12-00153
Commenter: Andrews & Kurth for "Hammond Lead"
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

Low Lead v. High Lead D008 Wastes

In its proposed land disposal restrictions for D008 wastes, EPA proposed two separate Best Demonstrated Available Technologies ("BDATs") based on the percentage of total lead in the waste. Nonwastewater forms of D008 wastes that contain less than 2.5% total lead must meet a proposed treatment standard of 0.51 mg/l based on stabilization. For wastes that contain 2.5% or greater total lead, EPA has proposed a BDAT treatment standard of high thermal recovery. By setting the threshold percentage for D008 wastes at 2.5%, EPA has failed to recognize the unfeasibility of recovering lead from wastes with relatively low percentages of lead (e.g., 2.5% - 10%).

Even if the threshold percentage was set at a more reasonable level and sufficient capacity were available for high thermal recovery, Hammond Lead believes that the distinction between low lead and high lead BDATs is unnecessary and counterproductive. Generators of D008 wastes should be free to avail themselves of the most appropriate BDAT for each waste, whether it be stabilization or high thermal recovery. Market forces should dictate which of these environmentally sound BDATs are to be used for any given waste. EPA's proposal based on low lead and high lead subcategories places generators of D008 waste in an impossible situation that could lead to the improper disposal and handling of these wastes.

The promulgation of different BDATs for the low lead and high lead subcategories would impose an unreasonable burden on generators of D008 waste.

Comment Number: 9-I-12 continued
Docket Number: LD12-00153
Commenter: Andrews & Kurth for "Hammond Lead"
Issue: Lead Wastes
Subissue: Proposed Cutoff Level for recovery
Comment:

First, generators would be required to test and to analyze each unit of waste as it was generated in order to determine which BDAT was applicable. Second, EPA has failed to identify any appropriate or acceptable testing procedures to determine the percentage of total lead in a waste. Without such guidance, it is virtually impossible to confirm what is the applicable BDAT. For example, Hammond Lead uses furnaces to manufacture some of the lead chemicals at its lead chemical manufacturing facilities. These furnaces are lined with refractory brick which makes direct contact with the lead. The bricks gradually corrode and periodically must be replaced. When these bricks are removed from the furnaces and tested for lead, they exhibit EP Toxic characteristic for lead. The lead concentration in the brick waste varies from sample to sample. The highest lead concentration will be found in the refractory brick samples which come in direct contact with the lead chemicals in the furnace. Reduced lead concentration will be found in the refractory bricks which do not come in direct contact with the lead chemicals in the furnace. Depending on which sampling techniques are used to determine the percentage of total lead in these bricks, different BDATs would be required.

Finally, as discussed above, if the regulatory options for handling D008 waste are too inflexible, generators may resort to improper disposal practices, thereby defeating the objectives of the land disposal restrictions. Hammond Lead proposes that EPA eliminate the distinction between low lead and high lead D008 wastes, give generators the choice between stabilization and high thermal recovery as the applicable BDAT, and set the BDAT treatment standard at the characteristic level of 5.0 mg/l.

Comment Number: 9-I-12 continued
Docket Number: LD12-00153
Commenter: Andrews & Kurth
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

3. High Thermal Recovery BDAT

For nonwastewater forms of D008 waste that contain 2.5% or more of total lead, EPA has proposed a BDAT treatment standard of "high thermal recovery." While Hammond Lead generally supports efforts to encourage the recovery of lead from lead-bearing materials, EPA's proposed treatment standard fails to take into account the technical and economic feasibility of recovering lead from materials with relatively low percentages of lead. In fact, EPA has made a leap of faith in setting the threshold percentage at 2.5, because the K061 waste treatment data upon which it relied was limited in scope and was based on the recovery of lead from materials with greater than 5% total lead.

Comment Number: 9-I-12 continued
Docket Number: LD12-00153
Commenter: Andrews & Kurth
Issue: Lead Wastes
Subissue: Proposed Cutoff Level for recovery
Comment:

In addition to the absence of data to suggest that high thermal recovery is an appropriate BDAT for D008 waste with 2.5% or greater total lead, sufficient high thermal recovery capacity is not currently available nor will sufficient capacity be available by May 8, 1990. While Hammond Lead sends most of its lead-bearing byproducts and other materials to lead recycling facilities, some materials that contain more than 2.5% total lead are not appropriate for high thermal recovery. For example, used refractory bricks that may exhibit the EP toxicity characteristic and contain more than 2.5% total lead are specifically manufactured to withstand the extremely high temperatures of the furnaces used in the manufacturing of lead chemicals. It would not be technologically and economically feasible for the typical lead recycling facility to treat the significant volumes of such wastes that are generated consistent with the proposed BDAT. Accordingly, generators of D008 waste such as Hammond Lead must rely on hazardous waste treatment facilities for high thermal recovery of these wastes. However, representatives from these treatment facilities have indicated that they do not have capacity to treat these wastes nor do they believe that it is technologically or economically feasible to treat these wastes consistent with the proposed BDAT.

COMMENT NUMBER: 9-I-12

DOCKET NUMBER: LD12-00153

COMMENTER: ANDREWS AND KURTH

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

Many commenters suggested that the Agency not promulgate the cutoff level of 2.5 percent total lead for high- and low-lead wastes. Data have been presented that indicate that D008 nonwastewaters with greater than 2.5 percent total lead can be stabilized to below the characteristic level, and that the percent of lead does not by itself determine whether wastes are recoverable. Therefore, the Agency has decided not to promulgate the cutoff level or to promulgate standards based on proposed high- and low-lead treatability groups for D008 nonwasewaters. Instead, the Agency has decided that nonwastewaters forms of lead must be treated to the characteristic level regardless of the percentage of total lead in these wastes.

Comment Number: 9-I-13
Docket Number: LD12-00159
Commenter: Waste Management Inc.
Issue: Lead
Subissue: Proposed Cutoff Level for Recovery
Comment:

e. Proposed Bifurcation of D008 Treatment Standard (54 Fed. Reg. at 48,438-39)

EPA has proposed to establish low lead and high lead subcategories for D008 wastes; the treatment standard for low lead wastes is based on stabilization and for high lead wastes is based on high temperature metals recovery (HTMR). While in general terms this scheme is reasonable, the Agency's proposal to use a level of 2.5% lead as the dividing line between the two subcategories is unreasonable, even as stated in the preamble, and lacks support in the administrative record. In fact, high temperature metals recovery is not an economically feasible technology for wastes with a lead content of less than approximately 25%.

In establishing HTMR as BDAT for the high zinc subcategory of K061, the Agency based its decision in part on the value the recovered product contributed to the economics of the process. If a metals recovery furnace is unable to recover a sufficiently high value of metal from a waste stream, the purpose of the burning is not for recovery but hazardous waste treatment and a RCRA permit is required. 50 Fed. Reg. at 630 (Jan. 4, 1985).

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Comment Number: 9-I-13 continued
Docket Number: L012-00159
Commenter: Waste Management Inc.
Issue: Lead
Subissue: Proposal Cutoff Level for Recovery
Comment:

In the K061 example, the 15% cut-off for the high zinc subcategory means that for every ton of waste smelted, about $225 (300 lbs. @ $.75/lb) of zinc would be removed. K061 also contains an average of about 2.5% lead, but lead recovery contributes little to the total economics of metals recovery from that waste. The amount of lead recovered from a ton of K061 with a 2.5% lead concentration (50 lbs.) is worth only $20 in pure form ($.40/lb) and only $12.50 in resmelt form.

In subjecting a D008 waste to HTMR, lead would typically be the only metal recovered. At the 2.5% cut-off, only $12.50 worth of resmelt lead will be recovered from a ton of D008, an amount well below the cost of burning that ton. Therefore, if EPA were to establish the cut-off at 2.5%, the Agency would essentially force smelters to charge up to several hundreds of dollars to burn a ton of D008 because the value of the recovered lead could not support the operation. The purpose of such burning would be commercial treatment, of course, not recycling. Therefore, the smelter would require a RCRA incinerator permit to conduct this treatment.

Another observation that exposes the inappropriateness of the 2.5% cut-off is that lead smelters produce a large quantity of the D008 generated in this country. If those smelters could economically recycle their slag rather than pay disposal costs, one would think they would do so.

Comment Number: 9 - I - 13 continued
Docket Number: L012-00159
Commenter: Waste Management Inc.
Issue: Lead
Subissue: Proposed Cutoff level for Recovery
Comment:

WMI's inquiries on this subject have revealed that lead concentrations of at least 25% or greater are necessary to make lead recovery in a smelter economically feasible. We therefore recommend that EPA raise the dividing line for the high lead subcategory from 2.5% to 25%. Based upon our experience with K061, we believe D008 with lead up to this concentration can be stabilized, though the stabilization standard itself may need to be bifurcated for D008 with concentrations somewhere between 2.5% and 25%.

Even in the preamble, EPA makes no reference to any evidence that lead can be recovered from a D008 waste with only a 2.5% concentration. Instead, it claims to have "data that indicate wastes containing concentrations of lead as low as 5 percent can be recovered, and concludes that this number "correlates well" with the proposed cut-off levels of 2.5%. 54 Fed. Reg 48,438 (emphasis added). Id. WMI fails to see the correlation.

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Comment Number: 9 - I - 13 continued
Docket Number: LD12 - 00159
Commenter: Waste Management Inc.
Issue: Lead
Subissue: Proposed Cutoff Level for Recovery
Comment:

Moreover, our examination of the public record did not uncover any data supporting the Agency's position. Of the materials placed in the "Administrative Record for D008 Wastes," the only item that even discusses high temperature metals recovery is an excerpt from the Background Document for K061 wastes (LDR12-REF S0361). This document does nothing to demonstrate that high temperature metals recovery is a viable option for the treatment of lead containing wastes. K061 wastes are treated primarily to recover zinc and all the samples reported in the Background Document contained zinc levels of 14% or greater. While the treatment process did reduce the level of lead in the K061 wastes, that fact does nothing to establish the commercial feasibility of treating other (i.e., non-zinc bearing) wastes to recover low levels of lead.

In summary, if the process is not economically feasible, it will not be provided. Thus, the process cannot be considered to be a "demonstrated" or "available" technology.

COMMENT NUMBER: 9-I-13

DOCKET NUMBER: LD12-00153

COMMENTER: WASTE MANAGEMENT, INC.

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

Many commenters suggested that the Agency not promulgate the cutoff level of 2.5 percent total lead for high- and low-lead wastes. Data have been presented that indicate that D008 nonwastewaters with greater than 2.5 percent total lead can be stabilized to below the characteristic level. Therefore, the Agency has decided not to promulgate the cutoff level or to promulgate standards based on proposed high- and low-lead treatability groups for D008 nonwastewaters. Instead, the Agency has decided that nonwastewaters forms of lead must be treated to the characteristic level regardless of the percentage of total lead in these wastes.

Comment Number: 9-I-14
Docket Number: LD12-00162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Proposed cutoff level for recovery
Comment:

The Distinction Between "Low Lead" and "High Lead" D008 Nonwastewater Subcategories is Technically Unsound

EPA has proposed separate treatment standards for wastes containing "low lead" and "high lead" concentration levels. Low lead wastes contain lead concentrations up to 2.5 percent, and high lead wastes contain lead in excess of 2.5 percent. 54 *Fed. Reg.* 48438 (col. 2). For low lead levels, EPA has proposed stabilization which results in leachable lead of 0.51 mg/l. Alternatively, EPA has proposed setting BDAT at 5.0 mg/l of lead, the characteristic level. For high lead level wastes, EPA has proposed "thermal recovery." *Id.* at 48439 (col. 1).

EPA's distinction between these two subcategories is arbitrary and unsubstantiated. EPA should abandon the distinction and establish a treatment standard of 5.0 mg/l as the treatment standard for all D008 nonwastewaters based on the characteristic level for lead. In addition, EPA should issue a national capacity variance for nonwastewater forms of D008 wastes until sufficient capacity is available to treat wastes from the lead recycling industry to proposed BDAT levels.

Comment Number: 9-I-14 continued
Docket Number: LD12-00162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

EPA states that the five percent lower limit of lead concentration data that it believes demonstrates the technical feasibility of recovery "correlates" well with the 2.5 percent maximum concentration in the wastes that were demonstrated to be stabilized effectively. In RSR's view, a concentration difference of 25,000 mg/kg (2.5 percent), which is a 100 percent difference with respect to the lower lead concentration, is not a good correlation in any scientific sense of which RSR is aware.

Further, EPA's assumption that waste containing between 2.5 and 5 percent lead are recoverable by "demonstrated" and "available" technologies is not supported by EPA's data, which do not demonstrate practical recovery of lead from waste containing less than 5 percent lead.

COMMENT NUMBER: 9-1-14

DOCKET NUMBER: LD12-00162

COMMENTER: RSR CORPORATION

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

Many commenters suggested that the Agency not promulgate the cutoff level of 2.5 percent total lead for high- and low-lead wastes. Data have been presented that indicate that D008 nonwastewaters with greater than 2.5 percent total lead can be stabilized to below the characteristic level. Therefore, the Agency has decided not to promulgate the cutoff level or to promulgate standards based on proposed high- and low-lead treatability groups for D008 nonwastewaters. Instead, the Agency has decided that nonwastewaters forms of lead must be treated to the characteristic level regardless of the percentage of total lead in these wastes.

Comment Number: 9-I-15
Docket Number: LD 12-00202
Commenter: GNB, Inc.
Issue: Lead wastes
Subissue: Proposed Cutoff level for recovery
Comment:

(1) low-lead subcategory

The low-lead subcategory applies to wastes containing less than 2.5 percent lead, which meet a treatment standard of 0.51 mg/l of leachable lead. EPA considers wastes at this level to be "stabilized." This stabilization threshold is based on data primarily from electroplating sludges (F006). For reasons set forth below, EPA's reliance on this data is misplaced.

(2) high-lead subcategory

EPA states that it has data indicating that lead can be recovered from wastes with concentrations of lead as low as 5 percent. Confusingly, EPA states that this conclusion corresponds well with the proposed cut-off level of 2.5 percent lead concentration, based on the performance of stabilization. EPA thus appears to be contending that wastes below 2.5 percent can be stabilized, and that wastes above 2.5 percent lead can be treated through thermal reclamation.

Comment Number: 9-I-15 continued
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

EPA has apparently reached this conclusion about the 2.5 percent threshold for thermal recovery based on data from recovery of lead from electric arc furnace dust wastes (K061), which can be as much as 14 percent lead. The residues from this latter reclamation process, which was accomplished through high-temperature metal recovery, did not leach above the characteristic level of 5.0 mg/l. Thus EPA is proposing "Thermal Recovery as a Method of Treatment" as the standard for all high lead wastes. This approach seems, therefore, to mandate the recycling of battery slag with a minimum of 2.5 percent lead content. For reasons set forth below, GNB submits that this approach is inappropriate.

Comment Number: 9-I-15 continued
Docket Number: L012-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

Comment 2: Cutoff Concentration for High-Lead/Low-Lead Subcategories

EPA has solicited comments on the definition of high-lead/low-lead D008 nonwastewaters based on a 2.5 percent concentration cutoff. While GNB believes that recycling D008 wastes to reclaim the lead is the most appropriate method for handling most lead-bearing materials, GNB suggests eliminating the distinction between high-lead and low-lead D008 wastes for the following two reasons:

1. Secondary lead smelters in the U.S. are currently operating at or near in capacity processing lead recovered from spent lead-acid batteries and other "indigenous" lead-bearing materials. "Thermal recovery" capacity simply does not exist to reclaim the lead from all non-indigenous D008 wastes having a total lead concentration above 2.5 percent, nor will it exist by May 8, 1990.

Comment Number: 9-I-15 continued
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead wastes
Subissue: Proposed Cutoff level for recovery
Comment:

Comment 4: Thermal Recovery

The proposed BDAT for the treatment of the D008 high lead subcategory and the lead acid battery subcategory is thermal recovery. For reasons set forth in this set of comments, GNB believes that this standard is needlessly inflexible.

The thermal recovery response is based upon studies made for the BDAT Background Document for K061 (electric arc furnace dust).[2] These studies involved five furnace technologies designed to volatilize zinc, lead, and trace amounts of cadmium and then to capture these constituents in dust collectors. See Table of References, item 7. GNB wishes to point out that the vast majority of the lead recovery capacity in the U.S. utilizes furnaces (blast, reverberatory, or rotary) which reduce lead compounds to elemental lead for recovery in molten forms. Volatilization is not a part of this recovery process.

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[2] U.S. Environmental Protection Agency, Office of Solid Waste. 1988. Best Demonstrated Available Technology (BDAT) Background Document for K061. Washington, D.C.: EPA/530-SW-88-031L, PB89-142384.

Comment Number: 9-I-15 continued
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recorery
Comment:

It is this difference in recovery techniques that makes EPA's proposed 2.5 percent lead content cutoff for the high lead subcategory unreasonable. The conventional furnaces used by the nation's smelters typically require feedstocks of at least 50 percent lead to operate economically. While it may be true that some lead can be recovered by fuming electric arc furnace dust containing as little as 2.5 percent lead, the overburdened smelters currently carrying the nation's lead recycling load would not accept these materials.

Comment Number: 9-I-15 continued
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

There are further problems with EPA's selection of thermal recovery as BDAT for D008 wastes. For instance, EPA asserts that it has data indicating that wastes containing as little as 5 percent lead can be recovered through thermal recovery. However, the data on which EPA is relying to show that high temperature metal recovery ("HTMR") is BDAT for D008, state that "the constituents must be volatilized near or above their boiling points in order to be volatilized and recovered." K061 Background Document at 3-13. EPA acknowledges that the boiling point for lead is 1760 degrees centigrade. K061 Background Document at 4-13. The highest temperature which EPA provides for HTMR is 840 degrees, nearly 1,000 degrees colder than the boiling point of lead. The boiling temperature for zinc is 907 degrees centigrade.

Even though the treatment characteristics for HTMR were much more suitable for zinc than lead, EPA placed the minimum level for HTMR for K061 wastes at 15 percent zinc, rather than 5 percent. Thus, EPA's minimum for HTMR for D008 wastes of 5 percent is inappropriate, as the data supposedly supporting EPA's choice of BDAT do not support the 5 percent minimum, and only support a minimum of 15 percent for zinc, which is more suited for HTMR than lead.

Comment Number: 9-I-15 continued
Docket Number: LD12-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

Another problem is demonstrated in EPA's claim that K061 wastes containing total lead concentrations up to 14 percent were reduced to leachate levels well below the characteristic level of 5.1 mg/1 by means of HTMR. 51 Fed. Reg. at 48439. The only mention in the K061 Background Document of a waste containing as much as 14 percent lead was at page 2-12, where untreated waste from the St. Joe Flame Reactor was stated as containing 139,000 parts per million of lead. The only performance data given for the St. Joe Flame Reactor, at page 4-21, is that untreated waste at a level of 30,000 ppm (i.e., 3 percent) of lead was reduced to 2,000 ppm (i.e., 2 percent) of lead by treatment. Indeed, the highest level of lead which was shown in the K061 Background Document to be reduced to less than 5.0 mg/1 was about 2.2 percent, or 21,900 ppm, at page 4-10. Thus, the K061 Background Document fails to support EPA's assertion that waste containing 14 percent lead can be reduced to leachate levels below 5.0 mg/1.

Comment Number: 9-I -15 continued
Docket Number: L012-00202
Commenter: GNB, Inc.
Issue: Lead Wastes
Subissue: Proposed Cutoff Level for recovery
Comment:

GNB concurs with the determination that the preferred method of treatment for "high lead" wastes is some form of metals recovery, as opposed to treatment and subsequent land disposal. But GNB strongly disagrees with defining of high lead wastes as those containing greater than 2.5 percent lead for purposes of mandating metals recovery. This is because lead-bearing wastes (D008) vary widely in other characteristics that affect the feasibility of thermal or other metals recovery. GNB believes that drawing a distinction between high and low lead wastes is inappropriate in any event. Rather, EPA should specify metals recovery as the preferred BDAT for all D008 wastes, as opposed to mandating this approach for any specific subcategories.

COMMENT NUMBER: 9-I-15
DOCKET NUMBER: LD12-00202
COMMENTER: GNB, INC.
ISSUE: Lead Wastes
SUBISSUE: Proposed cutoff level for recovery
RESPONSE:

Many commenters suggested that the Agency not promulgate the cutoff level of 2.5 percent total lead for high- and low-lead wastes. Data have been presented that indicate that D008 nonwastewaters with greater than 2.5 percent total lead can be stabilized to below the characteristic level. Therefore, the Agency has decided not to promulgate the cutoff level or to promulgate standards based on proposed high- and low-lead treatability groups for D008 nonwastewaters. Instead, the Agency has decided that nonwastewaters forms of lead must be treated to the characteristic level regardless of the percentage of total lead in these wastes.

Comment Number: 9-I-16
Docket Number: LD12-L0034
Commenter: HWTC
Issue: Lead
Subissue: Proposed Cutoff Level for Recovery
Comment:

a. High Lead vs Low Lead

HWTC supports SLSA's concerns about the suitability and practicality of the 2.5% cutoff for lead recovery. HWTC has submitted data demonstrating that lead in excess of 2.5% can be effectively stabilized. Chemical Waste Management (CWM) has also submitted data demonstrating that wastes containing up to 25% per cent lead can be stabilized. HWTC believes that EPA should not establish an upper cutoff for the stabilization of lead. We believe that the ability of stabilization to meet the BDAT should dictate which waste is to be recycled (i.e., do not set a cutoff and those waste which cannot be stabilized to meet the limit will be forced into recycling). Note also those comments regarding factors that affect the amenability of a waste to recycling (Section IV). At the very least, EPA should raise the limit to 25% as suggested by CWM. We also share the concern of SLSA over the analytical difficulties of determining the percentage lead content in a particular waste stream.

COMMENT NUMBER: 9-I-16

DOCKET NUMBER: LD12-00034

COMMENTER: HWTC

ISSUE: Lead Wastes

SUBISSUE: Proposed cutoff level for recovery

RESPONSE:

In response to the commenter's concerns regarding a reliable test procedure to determine the percentage of total lead, the Agency must point out that a test method does exist for measuring total metals in wastes. Method 7421, which is an approved SW-846 method, analyzes total metals by an atomic absorption furnace technique. From the analysis, one can determine the specific metals within the waste. Also, Method 6010 or Method 7420 can be used to analyze for total lead concentration greater than 2 percent. Therefore, the commenter's statement that a reliable method for analyzing lead in waste does not exist is not true.

Comment Number: 9-I-17
Docket Number: LD12-00159.
Commenter: Waste Mgmt., Inc. + Chemical Waste Mgmt., Inc.
Issue: Lead Wastes
Subissue: Proposed Cutoff Level for recovery
Comment:

e. Proposed Bifurcation of D008 Treatment Standard (54 Fed. Reg. at 48,438-39)

EPA has proposed to establish low lead and high lead subcategories for D008 wastes; the treatment standard for low lead wastes is based on stabilization and for high lead wastes is based on high temperature metals recovery (HTMR). While in general terms this scheme is reasonable, the Agency's proposal to use a level of 2.5% lead as the dividing line between the two subcategories is unreasonable, even as stated in the preamble, and lacks support in the administrative record. In fact, high temperature metals recovery is not an economically feasible technology for wastes with a lead content of less than approximately 25%.

In establishing HTMR as BDAT for the high zinc subcategory of K061, the Agency based its decision in part on the value the recovered product contributed to the economics of the process. If a metals recovery furnace is unable to recover a sufficiently high value of metal from a waste stream, the purpose of the burning is not for recovery but hazardous waste treatment and a RCRA permit is required. 50 Fed. Reg. at 630 (Jan. 4, 1985).

Comment Number: 9-I-17 continued
Docket Number: LD12-00159.
Commenter: Waste Mgmt., Inc. + Chemical Waste Mgmt., Inc.
Issue: Lead Wastes
Subissue: Proposed cutoff level for recovery
Comment:

In the K061 example, the 15% cut-off for the high zinc subcategory means that for every ton of waste smelted, about $225 (300 lbs. @ $.75/lb) of zinc would be removed. K061 also contains an average of about 2.5% lead, but lead recovery contributes little to the total economics of metals recovery from that waste. The amount of lead recovered from a ton of K061 with a 2.5% lead concentration (50 lbs.) is worth only $20 in pure form ($.40/lb) and only $12.50 in resmelt form.

In subjecting a D008 waste to HTMR, lead would typically be the only metal recovered. At the 2.5% cut-off, only $12.50 worth of resmelt lead will be recovered from a ton of D008, an amount well below the cost of burning that ton. Therefore, if EPA were to establish the cut-off at 2.5%, the Agency would essentially force smelters to charge up to several hundreds of dollars to burn a ton of D008 because the value of the recovered lead could not support the operation. The purpose of such burning would be commercial treatment, of course, not recycling. Therefore, the smelter would require a RCRA incinerator permit to conduct this treatment.

Comment Number: 9-I-17 continued
Docket Number: LD12-00159
Commenter: Waste Mgmt., Inc. + Chemical Waste Mgmt., Inc.
Issue: Lead Wastes
Subissue: Proposed Cutoff level for recovery
Comment:

Another observation that exposes the inappropriateness of the 2.5% cut-off is that lead smelters produce a large quantity of the D008 generated in this country. If those smelters could economically recycle their slag rather than pay disposal costs, one would think they would do so.

WMI's inquiries on this subject have revealed that lead concentrations of at least 25% or greater are necessary to make lead recovery in a smelter economically feasible. We therefore recommend that EPA raise the dividing line for the high lead subcategory from 2.5% to 25%. Based upon our experience with K061, we believe D008 with lead up to this concentration can be stabilized, though the stabilization standard itself may need to be bifurcated for D008 with concentrations somewhere between 2.5% and 25%.

Even in the preamble, EPA makes no reference to any evidence that lead can be recovered from a D008 waste with only a 2.5% concentration. Instead, it claims to have "data that indicate wastes containing concentrations of lead as low as 5 percent can be recovered, and concludes that this number "correlates well" with the proposed cut-off levels of 2.5%. 54 Fed. Reg 48,438 (emphasis added). Id. WMI fails to see the correlation.

Comment Number: 9-I-17 continued
Docket Number: LD12-00159
Commenter: Waste Mgmt., Inc. + Chemical Waste, Mgmt.
Issue: Lead Wastes
Subissue: Proposed cutoff level for recovery
Comment:

Moreover, our examination of the public record did not uncover any data supporting the Agency's position. Of the materials placed in the "Administrative Record for D008 Wastes," the only item that even discusses high temperature metals recovery is an excerpt from the Background Document for K061 wastes (LDR12-REF S0361). This document does nothing to demonstrate that high temperature metals recovery is a viable option for the treatment of lead containing wastes. K061 wastes are treated primarily to recover zinc and all the samples reported in the Background Document contained zinc levels of 14% or greater. While the treatment process did reduce the level of lead in the K061 wastes, that fact does nothing to establish the commercial feasibility of treating other (i.e., non-zinc bearing) wastes to recover low levels of lead.

In summary, if the process is not economically feasible, it will not be provided. Thus, the process cannot be considered to be a "demonstrated" or "available" technology.

COMMENT NUMBER: 9-I-17
DOCKET NUMBER: LD12-00159
COMMENTER: WASTE MANAGEMENT, INC. AND CHEMICAL WASTE MANAGEMENT, INC.
ISSUE: Lead Wastes
SUBISSUE: Proposed cutoff level for recovery
RESPONSE:

Many commenters suggested that the Agency not promulgate the cutoff level of 2.5 percent total lead for high- and low-lead wastes. Data have been presented that indicate that D008 nonwastewaters with greater than 2.5 percent total lead can be stabilized to below the characteristic level. Therefore, the Agency has decided not to promulgate the cutoff level or to promulgate standards based on proposed high- and low-lead treatability groups for D008 nonwastewaters. Instead, the Agency has decided that nonwastewaters forms of lead must be treated to the characteristic level regardless of the percentage of total lead in these wastes.

The commenter submitted characteristic data on lead in nonwastewaters. The untreated values ranged from <5 to <500 ppm. No corresponding treated values or OA/QC data were provided. The Agency appreciates the commenter's submission of data. However, in considering data for use in setting treatment standards, the Agency seeks corresponding influent and effluent concentrations of the particular waste to be treated and proper OA/QC data.

Therefore, these data have very limited value in setting treatment standards.

Comment Number: 9-I-18
Docket Number: LD12-00178
Commenter: BATTERY COUNCIL INTERNATIONAL
Issue: Lead
Subissue: Proposed Cutoff
Comment:

B. Nonwastewaters

For nonwastewaters, EPA has proposed separate treatment standards for waste containing "low lead levels," lead concentration of up to 2.5 percent, and wastes containing "high lead levels," lead concentration in excess of 2.5 percent. 54 Fed. Reg. 48438. For low lead level wastes, EPA has proposed stabilization which results in leachable lead of 0.51 mg/l. For high lead level waste EPA proposed "thermal recovery as a method of treatment." Id. at 48439.

For the reasons stated above, EPA must properly adopt the characteristic level as the treatment standard for D008 nonwastewaters. In addition, there are practical reasons why the standards EPA proposed would be inappropriate.

For low lead level wastes (any waste containing a concentration of less than 2.5 percent lead), EPA has proposed that the waste be stabilized so that the resulting mixture meets a standard of 0.51 mg/l leachable lead based on the TCLP method of measurement (rather than the EP). Stabilization involves mixing the waste with fly/ash mixtures, cement, concrete mixtures or other formulations. This mixing causes the volume of materials being handled to increase substantially. Indeed, in some cases, the volumetric increase is as much as 100 percent. Thus, the proposed treatment standard generates more waste than the original amount that must be disposed of. BCI submits that this approach is completely out-of-step with the waste reduction goals set out elsewhere in the proposed rule and emphasized in recently introduced legislation.

Furthermore, data submitted by the Secondary Lead Smelters Association, Inc. ("SLSA") demonstrates that the proposed treatment standard for low lead level wastes-- stabilization achieving 0.51 mg/l on the basis of TCLP -- is not attainable. See Letter to RCRA Docket (OS-305) from Robert N. Steinwurtzel dated December 22, 1989. The record thus not only does not support EPA's proposal, it rebuffs it.

COMMENT NUMBER: 9-I-18
DOCKET NUMBER: LD12-00178
COMMENTER: BATTERY COUNCIL INTERNATIONAL
ISSUE: Lead Wastes
SUBISSUE: Proposed cutoff level for recovery
RESPONSE:

The Agency does not believe that the data it received in response to the proposed rule represent the entire spectrum of characteristic lead nonwastewaters. The limited amount of data does not reflect the full measure of waste variability inherent in a characteristic waste, particularly variability of matrices and lead concentrations. In addition, the commenters do not address how treatability of other metals could be affected by optimized lead treatment. Based on (1) the treatment of the Vision Ease waste to 5.0 mg/l as measured by the EP, (2) the SLSA data demonstrating treatment to 4.82 mg/l as measured by the TCLP, and (3) data points above the characteristic level submitted by the waste treatment industry, the Agency is adopting for nonwastewater forms of D008 wastes the treatment standard equal to 5.0 mg/l as measured by the EP procedure. The Agency is adopting this approach to address the range of variability inherent in the D008 wastes.

Many commenters suggested that the Agency not promulgate the cutoff level of 2.5 percent total lead for high- and low-lead wastes. Data have been presented that indicate that D008 nonwastewaters with greater than 2.5 percent total lead can be stabilized to below the characteristic level. Therefore, the Agency has decided not to promulgate the cutoff level or to promulgate standards based on proposed high- and low-lead treatability groups for D008 nonwastewaters. Instead, the Agency has decided that nonwastewaters forms of lead must be treated to the characteristic level regardless of the percentage of total lead in these wastes.

Comment Number: 9-I-19
Docket Number: LD12-00129
Commenter: Olin
Issue: Lead
Subissue:
Comment:

Lead (III.A.5.f.)

The Agency has proposed splitting the D008 Lead non-wastewater BDAT treatment standard based upon a total lead level of 2.5%. Any lead bearing hazardous waste (D008) with a lead content greater than 2.5% would be subject to thermal recovery and the lower lead wastes would have to be treated to a lead TCLP of 0.51 mg/l.

In the discussion, the Agency states that "...the Agency has data that indicate that wastes containing concentrations of lead as low as 5 percent can be recovered." Nowhere does USEPA state that they have data that lead wastes between 2.5% and 5% can be recovered effectively. In fact, the Agency states that the 2.5% cut-off level is based upon limited data.

Comment Number: 9-I-19 (cont.)
Docket Number: LD12-00129
Commenter: Olin
Issue: Lead
Subissue:
Comment:

Further , by using limited data, the Agency has not addressed the different waste materials and forms of D008. By specifying thermal recovery, USEPA has categorical stated that there are no outside interferences to this type of treatment. Has the Agency determined whether thermal recovery will be hampered by materials contaminated with high concentrations of lead, such as baghouse bags?

Olin requests that the 2.5% cut-off level be removed and that the Agency offer the option of stabilization or thermal recovery until it can develop an adequate and technically justifiable data base.

The Agency specifies that there is sufficient capacity for resmelting these D008 High Level wastes. Again, the Agency has not taken into consideration the various forms of the wastes and whether the commercially available thermal recovery facilities will accept all D008 High Level Lead wastes. Therefore, if the Agency continues to require thermal recovery for High Level Lead wastes (D008), Olin requests a two year national capacity variance be granted until it is determined that adequate available treatment capacity exists.

COMMENT NUMBER:	9-I-19
DOCKET NUMBER:	LD12-00129
COMMENTER:	OLIN
ISSUE:	Lead
SUBISSUE:	Proposed cutoff level for recovery
RESPONSE:	

The Agency agrees with the commenter that the Agency should not promulgate a high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

The Agency disagrees with the commenter that the 2.5 percent cutoff level is unrealistic. At the time of proposal, the Agency had three data sets for treatment of lead. The Agency evaluated the data by comparing the influent concentrations of lead in F006 and K061. The Agency concluded that the highest concentration of lead that was stabilized was less than 2.5 percent. Therefore, the Agency proposed this as a cutoff level.

Comment Number: 9-I-20
Docket Number: LD12-00204
Commenter: Utility Solid Waste Activities Group, etal
Issue: Lead
Subissue:
Comment:

III. TREATMENT STANDARDS FOR HIGH-LEAD SUBCATEGORY

The Electric Utilities are troubled by the limitations under EPA's proposed treatment standard for the D008 (lead containing waste) high lead subcategory. Specifically, the Agency is proposing that wastes in the high lead subcategory (*i.e.*, those wastes containing greater than or equal to 2.5% lead), be subjected to a required treatment method of "thermal recovery as a method of treatment." *See* 54 Fed. Reg. at 48438-39. This treatment option, however, is impractical for certain lead wastestreams containing constituents that cannot be subjected to thermal recovery. One example is contaminated soil and debris containing PCBs and lead. Depending on the concentration of PCBs in the waste matrix, thermal recovery may

Comment Number: 9-I-20 (cont.)
Docket Number: LD12-00204
Commenter: Utility Solid Waste Activities Group, et al
Issue: Lead
Subissue:
Comment:

be prohibited under regulations promulgated under the Toxic Substances Control Act restricting the combustion of PCB wastes. See 40 C.F.R. § 761.60. Similarly, in the case of mixed waste (combinations of hazardous waste and low level radioactive waste), subjecting the radioactive component of the mixture to a mandatory thermal recovery treatment standard may be in violation of requirements under the Atomic Energy Act prohibiting or restricting the incineration of radioactive materials. See section VII, *infra*.

Accordingly, the Electric Utilities urge EPA to rethink its proposed treatment methods for the high lead subcategory to take into account waste mixtures that are not amendable to this treatment method. At a minimum, EPA should grant such wastes a two-year capacity variance as it has done for mixed wastes and other contaminated soils containing restricted wastes.

COMMENT NUMBER: 9-I-20

DOCKET NUMBER: LD12-00204

COMMENTER: UTILITY SOLID WASTE ACTIVITIES GROUP, et al.

ISSUE: Lead

SUBISSUE: Proposed Cutoff Level for Recovery

RESPONSE:

The Agency agrees with the commenter that the Agency should not promulgate a high and low lead subcategories. Data have been presented during the comment period that waste containing greater than 2.5 percent lead can be stabilized. In addition, this concentration is not an accurate measure in and of itself of when the waste is recyclable (comments suggested the percentage was too low, in any case). Therefore, the Agency does not believe that the cutoff level is a means of determining what waste can be recyclable or stabilized. Therefore, the Agency has decided not to promulgate the cutoff level for lead.

The Agency would also like to mention that contaminated soil and debris regulations will be promulgated at a later date.

Comment Number: 9-J-1
Docket Number: LD12-00161
Commenter: ANDREWS & KURTH (SLSA)
Issue: Lead Wastes
Subissue: Lead/Acid Batteries — further specification of "metals recover
Comment:

5. Lead-Acid Batteries Subcategory

The SLSA supports EPA's proposed BDAT of metals recovery for spent lead-acid batteries. See 54 Fed. Reg. at 48439. This BDAT is not only consistent with EPA's waste minimization and recycling policies, but it is the most environmentally sound alternative for handling spent batteries.

By the term "metals recovery," the SLSA understands that the Agency recognizes that whole batteries are not placed into furnaces, but that only lead components are thermally recovered by the industry. Other materials contained in spent batteries, such as plastic, are recycled separately and are not subject to thermal recovery. This clarification must be made in the final rule and, accordingly, the reference to "thermal" recovery should be deleted from the rule. It is inconceivable that EPA is proposing that whole spent batteries be thermal recovered since such a practice would result in the permanent shut-down of the lead recycling industry and would defeat the recycling and minimization goals established by Congress

COMMENT NUMBER: 9-J-1
DOCKET NUMBER: LD12-00161
COMMENTER: ANDREWS AND KURTH
ISSUE: Lead Wastes
SUBISSUE: Lead-Acid Batteries--Further specification of "metals recovery"

RESPONSE:

The Agency thanks the commenter for supporting metals recovery for spent lead-acid batteries. The Agency also agrees that in "metals recovery," only the lead components and not the plastic or other components are thermally recovered. The Agency is therefore promulgating a standard of thermal recovery of lead in secondary lead smelters (RLEAD). See Section 268.42, Table 1, in today's rule for a detailed description of the technology standard.

Comment Number: 9-J-2
Docket Number: LD12-00101
Commenter: Lead Industries Association
Issue: Lead Wastes
Subissue: Lead/Acid Batteries– further specification
Comment: of "Metals Recovery"

The Best Way to Encourage Recycling Of Lead-Bearing Materials Is To Avoid Regulating Them As Hazardous Waste.

As currently written, the land disposal restrictions would apply to the storage of spent batteries, lead plates, and other lead-bearing materials. Such an application would be overbroad and would interfere with the lead recycling industry's already established and salutory efforts to recover lead from spent lead-acid batteries and lead scrap. These lead-bearing materials, when stored at lead recycling facilities, are not discarded or abandoned, but are instead the equivalent -- or superior, in environmental terms -- of lead raw material inventories. The land disposal restriction would only disserve environmental goals if it operated to discourage these valuable lead recycling efforts.

COMMENT NUMBER: 9-J-2

DOCKET NUMBER: LD12-00101

COMMENTER: LEAD INDUSTRIES ASSOCIATION

ISSUE: Lead Wastes

SUBISSUE: Lead-Acid Batteries--Further specification of "metals recovery"

RESPONSE:

The response to this comment can be found in CAD's Response to Comments Document. See also the discussion in the preamble on a two-year capacity extension for such storage and EPA's willingness to discuss whether some storage preceding recovery, although technically involving waste piles, might not constitute 3004(h) land disposal.

Comment Number: 9-J-3
Docket Number: L012-00117
Commenter: Exide Corporation
Issue: Lead
Subissue: Lead/Acid Batteries – Further Specification
Comment: of "Metals Recovery"

Proposed Treatment Standard for D008 Lead-Acid Batteries Subcategory.

The EPA has proposed thermal recovery (lead smelting for metals reclamation) as the BDAT for spent lead-acid batteries. Exide Corporation believes that this BDAT, the most environmentally sound alternative for managing spent lead-acid batteries, is consistent with the RCRA goals of resource recovery and waste minimization.

COMMENT NUMBER: 9-J-3
DOCKET NUMBER: LD12-00117
COMMENTER: EXIDE CORPORATION
ISSUE: Lead Wastes
SUBISSUE: Lead-Acid Batteries--Further specification of "metals recovery"
RESPONSE:

The Agency thanks the commenter for supporting thermal recovery of lead as BDAT for lead-acid batteries.

Comment Number: 9-J-4
Docket Number: LD12-00130
Commenter: Wayne Disposal, Inc.
Issue: Lead Wastes
Subissue: Lead/Acid Batteries – Further Specification of "Metals Recovery"
Comment:

D008 - Lead Wastes: Michigan Disposal Incorporated agrees with the Agency proposal to recover lead from lead/acid batteries,

COMMENT NUMBER: 9-J-4

DOCKET NUMBER: LD12-00130

COMMENTER: WAYNE DISPOSAL, INC.

ISSUE: Lead Wastes

SUBISSUE: Lead-Acid Batteries--Further specification of "metals recovery"

RESPONSE:

The Agency thanks the commenter for supporting thermal recovery of lead as BDAT for lead-acid batteries.

Comment Number: 9-J-5
Docket Number: LD12 - 00162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Lead/Acid Batteries — Further Specification of "Metals Recovery"
Comment:

C. The BDAT for Lead Batteries of "Thermal Recovery" is Impractical

EPA is proposing "thermal recovery" as a method of treatment for lead batteries. See 54 Fed. Reg. at 48513 (col. 3). EPA's suggested BDAT for lead batteries is premised on a fundamental misunderstanding of the secondary lead process. Even though properly operating secondary lead manufacturers all utilize industrial furnaces, none produces metal by thermal means applied to lead batteries. Based on RSR's substantial experience in the secondary smelter business, it does not expect in the foreseeable future the development of a manufacturing process that would apply thermal recovery to an entire battery.

Properly operated secondary lead manufacturing facilities produce metal by applying thermal recovery to the lead-bearing portions of cracked batteries. The non-lead bearing portions of the battery are subject to different recovery processes. Many manufacturers, for example, produce polypropylene chips for the plastics extrusion industry and sized hard rubber case materials for use as a substitute for coke (a reducing agent in smelting and/or refining). The electrolyte, the liquid portion of a lead battery, is used to produce other products, to separate portions of the battery, and/or to set properly the pH of waters to allow quantitative precipitation of metals.

Comment Number: 9-J-6 continued
Docket Number: LD12-00.162
Commenter: RSR Corporation
Issue: Lead Wastes
Subissue: Lead/Acid Batteries—Further Specification of "Metals Recovery"
Comment:

EPA states in the BDAT methodology that only technologies that are in full-scale operation treating the waste in question are considered "demonstrated" technology. See Background Document for Wastewater Containing BDAT List Constituent, p. 3-3 (LD12-1061). EPA has not proven that application of thermal recovery to lead batteries is a "demonstrated" technology for purposes of BDAT. See also 51 Fed. Reg. at 40588 (col. 2) (a technology may be demonstrated "if currently used" to treat or recycle wastes). Even if thermal recovery were proven to be "demonstrated," application of thermal recovery to the non-lead bearing components of a battery would be wasteful since these components have valuable recycling potential. Application of thermal recovery would, under these circumstances, be inconsistent with Federal recycling goals set forth in RCRA.

RSR urges EPA to establish a treatment standard for lead batteries of "utilization as raw material for SIC 3341 manufacturing processes." This treatment standard describes better and more accurately the technology in fact used in the metals manufacturing industry. It is also more flexible in that it recognizes that manufacturing processes other than smelting or melting can be utilized by the secondary lead manufacturing industry to produce lead and other metal and non-metal products.

COMMENT NUMBER: 9-J-5

DOCKET NUMBER: LD12-00130

COMMENTER: WAYNE DISPOSAL, INC.

ISSUE: Lead Wastes

SUBISSUE: Lead-Acid Batteries--Further specification of "metals recovery"

RESPONSE:

The Agency agrees that in "metals recovery" only the lead components and not the plastic or other components are thermally recovered. The Agency is therefore promulgating a standard of Thermal Recovery of Lead in Secondary Lead Smelters (RLEAD) as a Method of Treatment of Lead-Acid Batteries. See Section 268.42, Table 1, in today's rule for a detailed description of the technology standard.

Comment Number: 9-J-6
Docket Number: LD12-00174
Commenter: East Penn Manufacturing Co., Inc.
Issue: Lead Wastes
Subissue: Lead/Acid Batteries - Further Specification of "Metals Recovery"
Comment:

East Penn's operational data indicates that it is presently technologically infeasible to recycle lead acid batteries by secondary smelting operations in such a manner so as to consistently produce a residue which will no longer leach lead above the EP toxicity level of 5.0 mg/l. Performance data from East Penn indicates that the secondary smelting operations produce slag which will fail the EP toxicity level approximately 40% of the time, while the matte produced will fail the EP toxicity test approximately 95% of the time. East Penn has conducted extensive testing over the past eight years to identify and quantify variables which affect the leachability of the slag and matte produced, however, no technology capable of consistently reducing the leachate level to below the characteristic level of 5.0 mg/l has been identified to date.

Analytical data also indicates that the composition of the slag and matte produced from the secondary smelting of lead acid batteries and other indigenous waste is not comparable to K061 wastes. The differences in composition produce a marked impact upon treatability and the leaching characteristics of the resulting residues. Therefore, K061 data cannot be used to predict the treatability by thermal recovery of lead acid batteries or the slag and matte resulting from the secondary smelting of lead acid batteries.

Comment Number: 9-J-6 continued
Docket Number: LD12-00174
Commenter: East Penn Manufacturing, Co., Inc.
Issue: Lead ~~[illegible]~~ Wastes
Subissue: Lead/Acid Batteries – Further Specification of "Metals Recovery"
Comment:

Accordingly, the treatment standard for lead acid batteries should be thermal recovery as a method of treatment, however, the resulting residue should not be required to meet a treatment standard of less than 5.0 mg/l leachable lead prior to land disposal. In the alternative, East Penn submits that the treatment standard for lead acid batteries should be thermal recovery as a method of treatment, with the resulting residue being required to leach lead at a level of less than 5.0 mg/l.

Comment Number: 9-J-6 continued
Docket Number: LD12-00174
Commenter: East Penn Manufacturing Co., Inc.
Issue: Lead Wastes
Subissue: Lead/Acid Batteries – Further Specification of "Metals Recovery"
Comment:

D. K061 Data Cannot be Used to Predict the Treatability by Thermal Recovery of Lead Acid Batteries or the Slag and Matte Resulting From the Secondary Smelting of Lead Acid Batteries

Exhibit "C" demonstrates the dramatic difference between the chemical composition of blast furnace slag and matte and K061 waste (electric arc furnace dust). K061 data was obtained from EPA-BDAT background documents for K061 Tables 2-3 and 2-4 on pages 2-8 and 2-7. Slag and matte data are from daily samples taken at East Penn and analyzed in East Penn's laboratory.

Exhibit "C" shows the significant difference between blast furnace slag and matte and K061 waste. These differences have a marked impact upon their treatability. The first major difference is that while K061 is reported as containing primarily metal oxides (BDAT Background Document pages 3-5 and 3-6), blast furnace slag and matte contains sulfides and silicates along with metallic oxides. Thus, the lead compounds in blast furnace slag exhibit different leaching characteristics.

Comment Number: 9-J-6 continued
Docket Number: LD12-00174
Commenter: East Penn Manufacturing Co., Inc.
Issue: Lead Wastes
Subissue: Lead/Acid Batteries - Further Specification of "Metals Recovery"
Comment:

Secondly, the quantity of zinc in K061 is several orders of magnitude greater than blast furnace slag and matte. The presence of zinc in K061 may influence the leachability of the final compound form. Finally, the ratio of calcium to silica in blast furnace slag and matte are significantly different from those of K061. Page 3-15 of the BDAT Background Document states that for K061 the Ca/Si ratio must be maintained for the most efficient treatment. Calcium to silica ratios as reported in the Background Document are 3.33 to 9.84. Typical calcium to silica ratios for slag are less than 1. In matte, calcium is usually not found in any reportable quantity.

COMMENT NUMBER: 9-J-6

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COMMENTER: EAST PENN MANUFACTURING COMPANY, INC.

ISSUE: **Lead Wastes**

SUBISSUE: Lead-Acid Batteries--Further specification of "metals recovery"

RESPONSE:

The Agency has determined that the BDAT for lead-acid batteries is thermal recovery as a method of treatment. If waste residues from this recovery process exhibit a characteristic toxicity for lead, they must be treated to 5 ppm EP.

The commenter questions whether the slag or matte from recovery processes would need further treatment and whether these wastes should be placed in monofills. The residuals from the recovery process are a new treatability group (i.e., the residues are not lead-acid batteries) and therefore their status as prohibited or nonprohibited is determined at the point at which the residues are generated. Such residues would thus be prohibited and therefore require further treatment only if they exhibit a characteristic. See the discussion for inorganic debris in the final rule.